SAFETY PRECAUTIONS

SERVICE WARNING

Only qualified service technicians who are familiar with safety checks and guidelines should perform service work. Before replacing parts, disconnect power source to protect electrostatically sensitive parts. Do not attempt to modify any circuit unless so recommended by the manufacturer. When servicing the receiver, use an isolation transformer between the line cord and power receptacle.

SERVICING THE HIGH VOLTAGE AND CRT

Use EXTREME CAUTION when servicing the high voltage circuits. To discharge static high voltage, connect a 10K ohms resistor in series with a test lead between the receiver and CRT anode lead. DO NOT lift the CRT by the neck. Always wear shatterproof goggles when handling the CRT to protect eyes in case of implosion.

X-RAY RADIATION AND HIGH VOLTAGE LIMITS

Be aware of the instructions and procedures covering X-ray radiation. In solid-state receivers and monitors, the CRT is the only potential source of X-rays. Keep an accurate high voltage meter available at all times. Check meter calibration periodically. Whenever servicing a receiver, check the high voltage at various brightness levels to be sure it is regulating properly. Keep high voltage at rated value, NO HIGHER. Excessive high voltage may cause X-ray radiation or failure of associated components. DO NOT depend on protection circuits to keep voltage at rated value. When troubleshooting a receiver with excessive high voltage, avoid close contact with the CRT. DO NOT operate the receiver longer than necessary. To locate the cause of excessive high voltage, use a variable AC transformer to regulate voltage. In present receivers, many electrical and mechanical components have safety related characteristics which are not detectable by visual inspection. Such components are identified by a # on both the schematic and the parts list. For SAFETY, use only equivalent replacement parts when replacing these components.

TEST JIG HOOKUP

Function	Chek-A-Color Adapter No.	PC Board Plug No.	Pin	Color
CRT	B239	P Horiz	E4401	Red
Yoke	D4124		E4402	Blue
Yoke Setting	YP1A	P Vert	E4501	Yellow
Comments	Focus Tap		E4502	Green

SAFETY CHECKS – FIRE AND SHOCK HAZARD

Cold Leakage Checks for Receivers with Isolated Ground

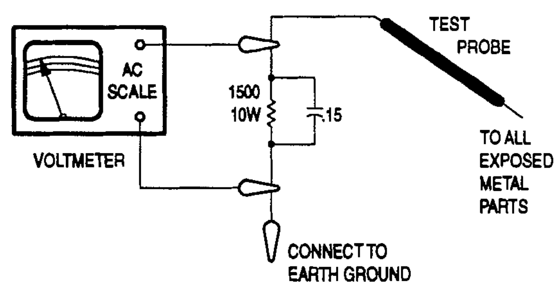
Unplug the AC cord, connect a jumper across the plug prongs, and turn the power switch on (if applicable). Use an ohmmeter to measure the resistance between the jumped AC plug and any exposed metal cabinet parts such as antenna screw heads, control shafts, or handle brackets. Exposed metal parts with a return path should measure between 1M ohms and 5.2M ohms. Parts without a return path must measure infinity.

Hot Leakage Current Check

Plug the AC cord directly into an AC outlet. DO NOT use an isolation transformer. Use a 1500 ohms, 10W resistor in parallel with a .15µF capacitor to connect between any exposed metal parts on the receiver and a good earth ground. (See figure below.) Use an AC voltmeter with at least 5000 ohms per volt sensitivity to measure the voltage across the resistor. Check all exposed metal parts and measure voltage at each point.
Voltage measurements should not exceed .75VAC, 500µA. Any value exceeding this limit constitutes a potential shock hazard and must be corrected. If the AC plug is not polarized, reverse the AC plug and repeat exposed metal part voltage measurement at each point.

GENERAL GUIDELINES

Perform a final SAFETY CHECK before returning receiver to customer. Check repaired area for poorly soldered connections, and check entire circuit board for solder splashes. Check inner board wiring for pinched wires or wires contacting any high wattage resistors. Check that all control knobs, shields, covers, grounds, and mounting hardware have been replaced. Be sure to replace all insulators and restore proper lead dress.



The listing of any available replacement part herein in no case constitutes a recommendation, warranty, or guarantee by Howard W. Sams & Company as to the quality and suitability of such replacement part. The numbers of the listed parts have been compiled from information furnished to Howard W. Sams & Company by the manufacturers of the specific type of replacement part listed.

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SET 3459

MODELS F25652BLFE1/JX1 (CHASSIS CTC187AB) -

RCA

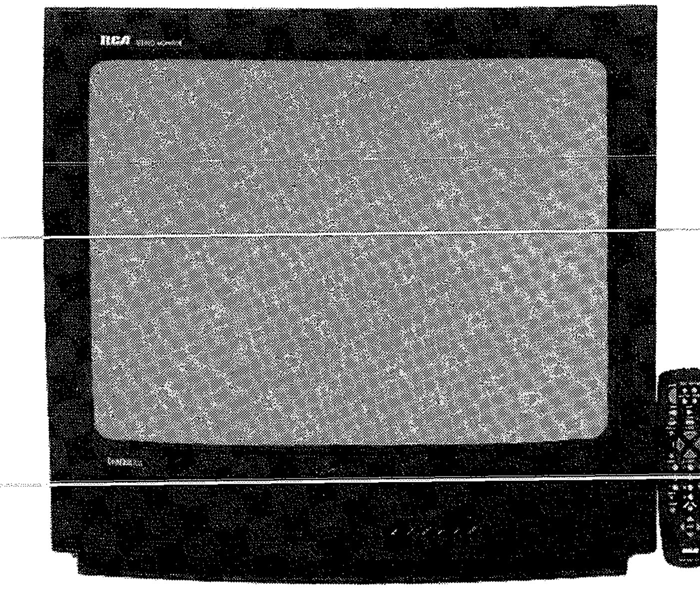
PHOTOFACT® Technical Service Data

INDEX

For Supplier Address,
See PHOTOFACT Annual Index

RCA

Models F25652BLFE1/JX1 (Chassis CTC187AB)



Model F25652BLFE1

Complete coverage for servicing a television receiver...

- Schematics
- Parts list
- Component locations
- Troubleshooting guide

Coverage includes these additional models and chassis:

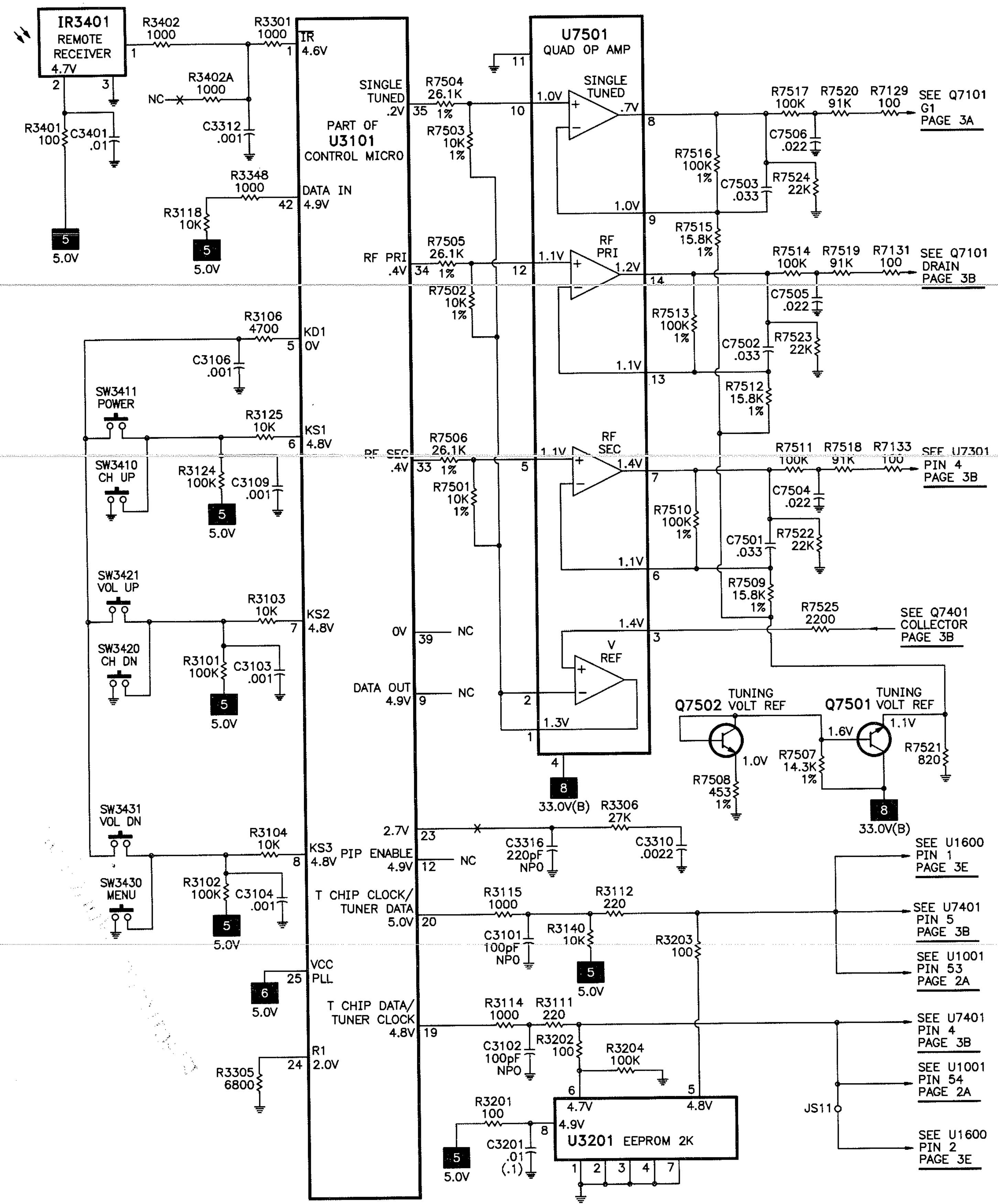
MODELS	CHASSIS
F26634SFFE1/JX1	CTC187AB

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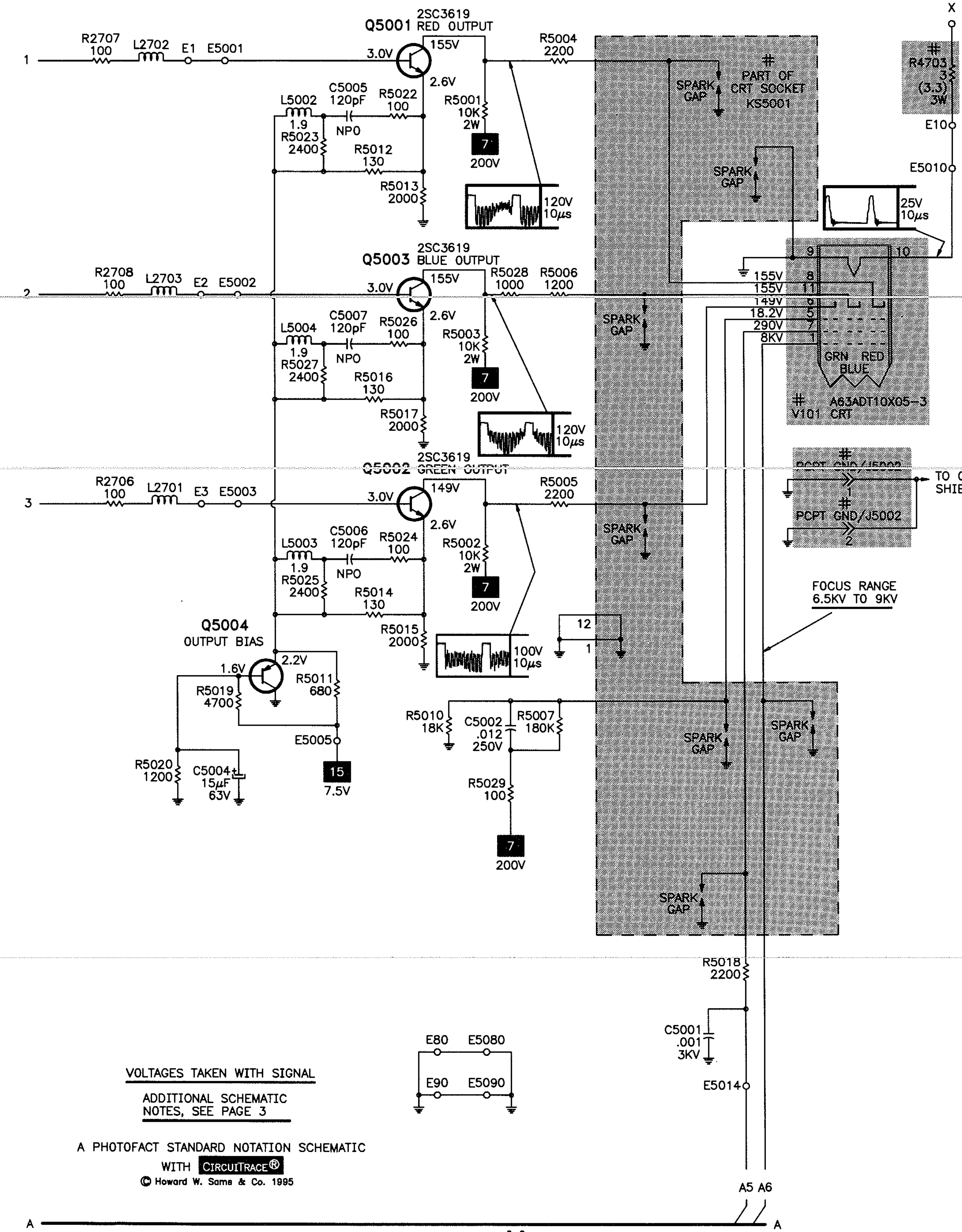
MARCH 1995 SET 3459

SYSTEM CONTROL SCHEMATIC



G

CRT SCHEMATIC



VOLTAGES TAKEN WITH SIGNAL

ADDITIONAL SCHEMATIC NOTES, SEE PAGE 3

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RCA

MODELS F25652BLFE1/JX1 (CHASSIS CTC187AB)

TROUBLESHOOTING

POWER SUPPLY

Check F4001. If fuse is open, check CR4001 thru CR4004, C4001, C4003, C4004, C4007, C4009, C4010, Q4401, and U4101. Apply 120VAC and check for 140V at the cathode of CR4106. If voltage is missing, check U4101 and T4101. Confirm operation of U4101 by checking for -40.5V* ± .5V at pin 1 of U4101 (voltage may be 4 or 5 volts higher in standby mode). If the voltage is incorrect, U4101 may be defective or there may be an abnormal load. If voltage at the cathode of CR4106 measures approximately 30.0V, check for a short at pin 1 of U4101. If the voltage at the cathode of CR4106 is over 200V, check for an open at pin 1 of U4101. If the outputs are shorted, the power supply will shut down until short is removed. Check voltages associated with Q4103 and Q4105. If voltages are incorrect, check Q3101, Q3102, Q4103, Q4105, U4102, and pin 2 of U3101. If voltages are correct, refer to the "Horizontal" section of this Troubleshooting guide.

* Taken from common tie point.

HIGH VOLTAGE SHUTDOWN TEST

Apply 120VAC. Use remote transmitter to set customer controls for normal operation. Momentary short pin XRP1 to XPR2. The set should lose raster and sound, and then restart. If set does not shut down, the shutdown circuit should be repaired.

HIGH VOLTAGE SHUTDOWN

CAUTION: When defeating the high voltage shutdown circuit, do not exceed the maximum high voltage specified on the schematic, as this may cause excessive X-radiation and damage to the CRT and associated components. Monitor the high voltage while troubleshooting.

NOTE: The X-ray protection circuit latches on a fault detection and resets during the on to off cycle of the on/off control signal. U3101 counts the number of resets and after 3 resets U3101 will not attempt to restart the receiver.

The high voltage is monitored by CR4901, rectifying pulses from T4401. Should the high voltage increase, the rectified voltage at the cathode of CR4901 will also increase and trigger CR4902. Voltage at emitter of Q4901 will increase and turn on Q4901. Voltage at pin 26 of U1001 will increase, which will cause the set to shut down. To troubleshoot, disconnect one end of CR4902, check Q4901, CR4901, and CR4902.

Voltages Taken With TV In Shutdown

Q4901		U1001	
E	0 V	Pin 25	2.6 V
B	0 V	Pin 26	.1 V
C	.1 V		

HORIZONTAL

To determine if the set is in shutdown, refer to the "High Voltage Shutdown" section of this Troubleshooting guide. If set is not in shutdown, inject a horizontal signal at the base of Q4401. If horizontal deflection is now present, check Q4301, Q4302, and U1001 pins 20 thru 27. If there is no horizontal sweep, check Q4401, T4401, CR4702, CR4113, CR4701, CR4705, CR4704, and Q4101. The high voltage rectifier is part of T4401 and if defective will affect the operation of the horizontal circuits. Horizontal linearity or foldover may be caused by C4402, C4406, or L4402 being defective.

VIDEO/CHROMA

Inject a video signal at pin 48 of U1001, and check for video on the CRT. If video is now present, check Q2704 and refer to the "IF-AGC" section of this Troubleshooting guide. Check for the proper waveforms at pins 36, 37, and 38 of U1001. If the waveforms are missing, check U1001. If the waveforms are present at pins 36, 37, and 38 of U1001, refer to the "Raster" section of this Troubleshooting guide.

VERTICAL

Check for 25.5V at pin 6 of U4501, if 25.5V is missing, check R4511. If open, replace R4511 and check U4501 for internal short. Check pin 17 of U1001 for 2.0Vp-p vertical ramp signal. If the vertical ramp signal is present, check U4501 by substitution. If the vertical ramp signal is missing, check for 7.5V at pin 32 of U1001, and check for 2.8V at pin 18 of U1001. If the 2.8V is missing, check C4501, C4503, and U1001.

RASTER

Check the CRT and CRT voltages. If red is missing, check pin 8 of V101, and Q5001. If green is missing, check pin 6 of V101, and Q5002. If blue is missing, check pin 11 of V101, and Q5003.

AUDIO

Select an active TV channel, and check for an audio waveform at pin 3 of U1001. If audio waveform is missing check pins 55, 58, 57, and 3 of U1001. Check for audio waveforms at pins 28 and 29 of U1600. If audio waveforms are missing check U1600. If audio waveforms are present at pins 28 and 29 of U1600, check for audio waveforms at pins 59, and 60 of U1001. If audio waveforms are missing at pins 59 and 60 of U1001, check U1601, pin 28 of U3101, and pins 4, 5, 7, 8, 59, and 60 of U1001. If audio waveforms are present, check U1901, Q1903, and pin 29 of U3101.

IF-AGC

Inject a video IF signal at pin 11 of U1001, and check for video on the CRT. If video is present on the CRT, check the tuner circuit. Check for a video waveform at pin 51 of U1001, if present, refer to the "Video" section of this Troubleshooting guide. If video waveform is missing, apply AGC bias to pin 12 of U1001. If video is now present, check Q2301 and pins 6, 12, 13, and 14 of U1001. If video waveform is still missing, check U1001.

TUNER CIRCUIT VOLTAGE CHART

Pin No.	VHF Low Band	VHF High Band	UHF Band
U7301			
1	5.4V	5.4V	5.3V
2	2.9V	3.0V	3.2V
3	7.8V	7.7V	7.6V
4	3.0V	3.0V	3.2V
5	7.8V	7.7V	7.6V
6	0V	0V	0V
7	3.0V	3.0V	0V
8	9.0V	9.0V	8.8V
9	3.0V	3.0V	3.3V
10	3.3V	3.2V	2.9V
11	4.9V	5.1V	9.7V
12	3.3V	3.2V	2.9V
13	0V	0V	0V
14	9.1V	9.0V	5.4V
15	3.4V	3.4V	2.9V
16	3.4V	3.4V	2.9V

Pin No.	VHF Low Band	VHF High Band	UHF Band
U7401			
1	1.7V	2.1V	1.7V
2	2.1V	2.1V	2.1V
3	2.1V	2.1V	2.1V
4	4.8V	4.8V	4.8V
5	4.7V	4.7V	4.7V
6	0V	0V	0V
7	1.3V	1.3V	1.3V
8	11.5V	0V	0V
9	7.4V	7.4V	0V
10	4.8V	4.8V	4.8V
11	2.3V	2.3V	2.3V
12	2.3V	2.3V	2.3V
13	0V	0V	0V
14	.6V	.6V	.6V

Pin No.	VHF Low Band	VHF High Band	UHF Band
U7501			
1	1.3V	1.7V	1.8V
2	1.3V	1.7V	1.8V
3	1.4V	1.6V	1.8V
4	33.0V	33.0V	33.0V
5	1.1V	1.5V	1.6V
6	1.1V	1.5V	1.6V
7	1.4V	4.0V	4.8V
8	.7V	3.5V	4.6V
9	1.0V	1.4V	1.5V
10	1.0V	1.4V	1.5V
11	0V	0V	0V
12	1.1V	1.4V	1.5V
13	1.1V	1.4V	1.5V
14	1.2V	3.4V	4.4V

NOTE: Voltages taken with signal.
VHF Low Band voltages taken on channel 2.
VHF High Band voltages taken on channel 7.
UHF Band voltages taken on channel 14.

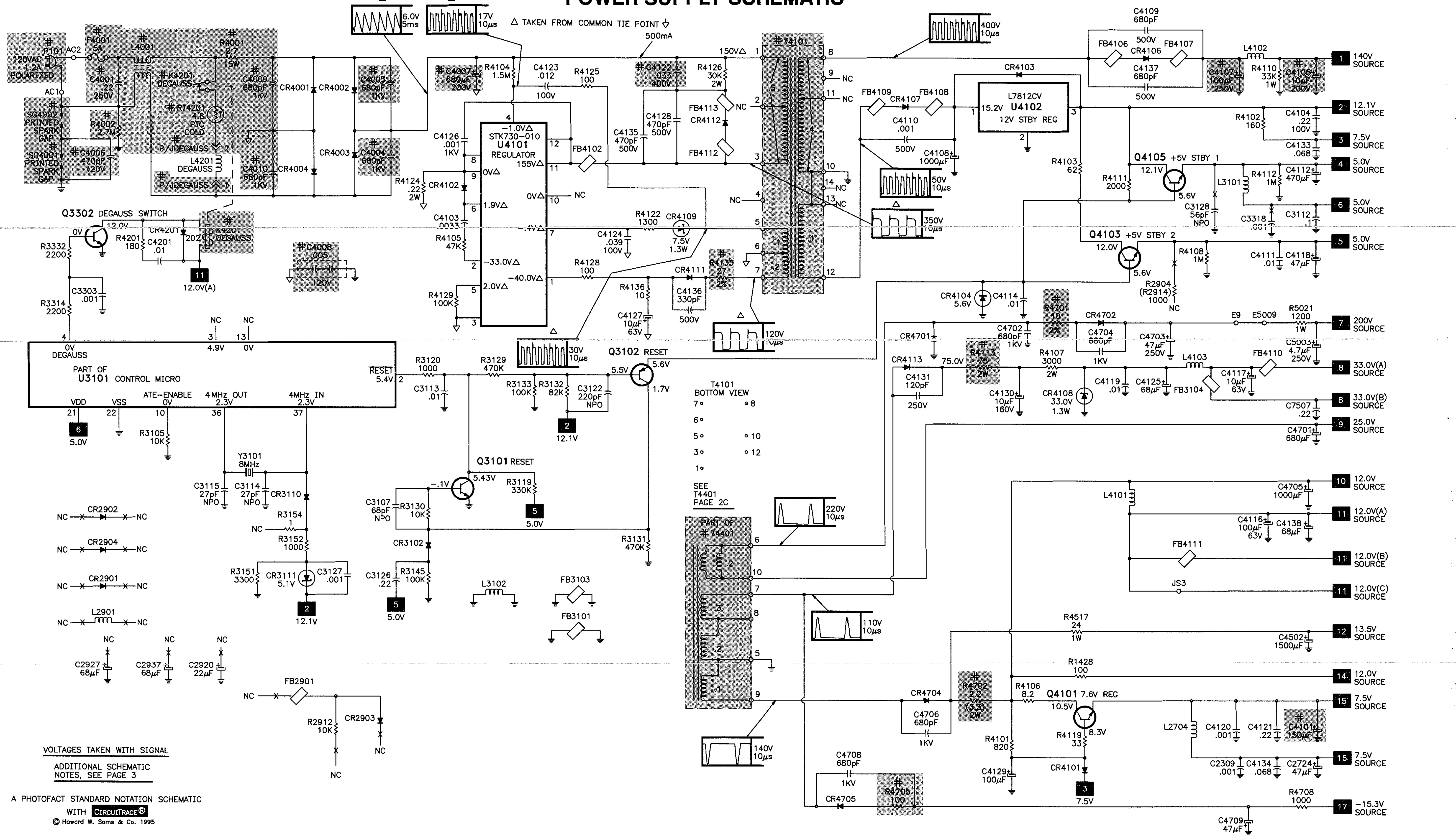
Pin No.	VHF Low Band	VHF High Band	UHF Band
Q7101			
G1	0V	0V	4.8V
G2	5.0V	6.5V	7.2V
D	.2V	.2V	11.3V
S	.2V	.2V	4.8V
Q7102			
G1	4.6V	4.6V	4.6V
G2	5.3V	6.8V	7.2V
D	11.3V	11.2V	11.4V
S	4.1V	4.2V	11.3V

Pin No.	VHF Low Band	VHF High Band	UHF Band
Q7401			
E	0V	0V	0V
B	.6V	.6V	.6V
C	2.1V	3.8V	17.8V
Q7402			
E	11.4V	11.2V	11.3V
B	11.3V	10.5V	10.6V
C	-14.9V	11.1V	11.2V

Pin No.	VHF Low Band	VHF High Band	UHF Band
Q7403			
E	0V	0V	0V
B	.7V	.7V	0V
C	.1V	.1V	11.3V
Q7404			
E	11.4V	11.2V	11.3V
B	11.0V	11.9V	10.6V
C	.1V	.1V	11.3V

NOTE: Voltages taken without signal.
VHF Low Band voltages taken on channel 2.
VHF High Band voltages taken on channel 7.
UHF Band voltages taken on channel 14.

POWER SUPPLY SCHEMATIC



VOLTAGES TAKEN WITH SIGNAL

ADDITIONAL SCHEMATIC NOTES, SEE PAGE 3

A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE®

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MISCELLANEOUS ADJUSTMENTS

PRETUNING

NOTE: All procedures require an antenna connected and power applied to the set.

Auto Program

1. Press the program button to select autoprogram.
2. Press the + button. All available channels are scanned and stored in memory.
3. Press display to clear menu.

Channel Memory

1. Press the program button to select channel memory.
2. Select channel with number buttons or channel up and down buttons.
3. Press + button to add a channel or - button to erase a channel.
4. Repeat steps 2 and 3 to add or erase other channels.
5. When finished, press done to save selections.

HIGH VOLTAGE CHECK

Tune in a picture. Set brightness, contrast, and color to minimum. Connect a high voltage probe to the CRT anode. High voltage should measure 25KV to 27KV.

COLOR TEMPERATURE

NOTE: See Service Adjustment Parameters to change drive and bias values.
Press menu button on the TV set for collapsed raster service line. Set the TV to S-Video with no video signal. Preset the red, green, and blue drive values to 32. Preset the red, green, and blue bias values to provide 120VDC at the collector of the respective output transistors. Adjust screen control for a service line that is just visible. Adjust red, green, and blue drives to obtain a white raster. Check the low light to high light gray scale tracking. Repeat the procedure, if necessary, to obtain the best performance.

SERVICE MENU

The following adjustment and alignment procedures are accessed thru a service menu using buttons on the receiver. To access the sevice menu, turn the set on, press the menu button and hold it down while pressing the power button. While holding down the menu button, release the power button and press the volume + button. The screen will display a one line menu, on the left the parameter P 00, and on the right the value of that parameter V 00. Release buttons. Adjustments are made by selecting the proper parameter and changing the value of that parameter. To change the parameter number use channel up and down buttons. To adjust the current value of that parameter use volume + and - buttons. The three main groups of parameters are, the service adjustment parameters, the chassis alignment parameters, and the tuner alignment parameters. To access and change any of the adjustments, the proper parameter pass number and value must be entered. This information is listed at the beginning of each alignment. When these parameters are modified, the T-Chip and the corresponding EEPROM are updated. All service adjustments are bus controlled, except focus and screen.

WARNING: **When adjusting the horizontal frequency be careful not to exceed the value range, or the set will go into shutdown, and replacement of U3101 may be required. In case the set goes into shutdown loop connect a capacitor across C4402 with the same value, redo horizontal frequency adjustment, then remove the capacitor. It may be necessary to readjust the horizontal frequency again.**

SERVICE ADJUSTMENT PARAMETERS

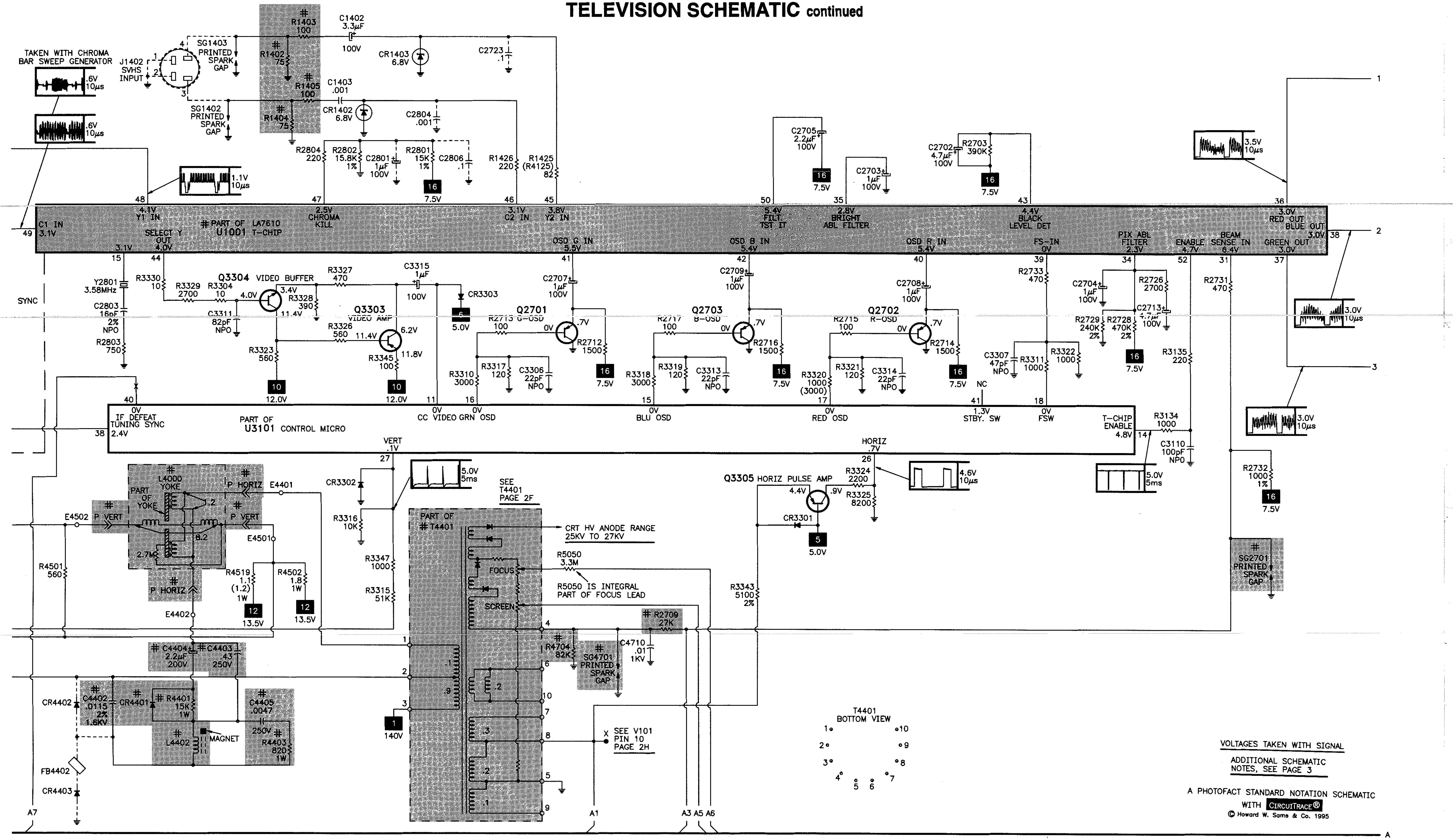
Parameter No.	Parameter Name	Value Range	Comment
00	Pass number for service adjustment parameters	Must set to 76	May not advance until value set.
01	Horizontal frequency (see warning)	00 - 63	Adjust for stable or slowly moving horizontal lines.
02	Horizontal phase	00 - 15	Adjust to center picture left to right.
03	EW DC (Width)	00 - 15	-
04	EW amplitude	00 - 07	-
05	Vertical DC	00 - 15	Adjust to center picture top to bottom.
06	Vertical size	00 - 31	Adjust to 1/4" overscan top and bottom of screen.
07	Red bias	00 - 127	Press menu button for setup line.
08	Green bias	00 - 127	Press menu button for setup line.
09	Blue bias	00 - 127	Press menu button for setup line.
10	Red drive	00 - 63	Press menu button for setup line.
11	Green drive	00 - 63	Press menu button for setup line.
12	Blue drive	00 - 63	Press menu button for setup line.

CHASSIS ALIGNMENT PARAMETERS

Parameter No.	Parameter Name	Value Range	Comment
13	Pass number for chassis alignment parameters	Must set to 77	May not advance to higher parameter until value is set.
14	PLL tuning	00 - 63	Apply 4.0V to pin 14 of U1001. Short junction of R7130 and R2313 to ground. Connect 41.25MHz (300mv) marker to pin 1 of SF2301. Connect an oscilloscope to pin 55 of U1001. Adjust value for 2.2μs sinewave.
15	4.5MHz trap	00 - 07	Short junction of R7130 and R2313 to ground. Apply 45.75MHz (300mV) and 41.25 MHz (100mV) to pin 1 of SF2301. Connect an oscilloscope to pin 63 of U1001, and adjust value for minimum 4.5MHz sinewave.
16	Video level	00 - 07	Tune in a color bar pattern, 100% modulation, super pulse display. Connect oscilloscope to pin 63 of U1001. Adjust value range to produce 2V p-p response.
17	FM level	00 - 15	Connect signal generator to pin 55 of U1001, inject 4.5MHz carrier, 1kHz modulation, with 25kHz deviation. Apply 4.0V to pin 14 of U1001. Connect oscilloscope to pin 3 of U1001, and adjust value range for 1.2V p-p of 1kHz component.
18	B+ trim	00 - 15	CTC175 only.
19	RF AGC (1)	00 - 31	Manually tune channel 6.
20	D-PIP chroma	00 - 127	-
21	D-PIP tint	00 - 255	-
22	D-PIP brightness	00 - 31	-
23	D-PIP contrast	00 - 63	-
24	Factory tint	00 - 63	-
25	Input level	00 - 15	Refer to Stereo Adjustments.
26	Stereo VCO	00 - 63	Refer to Stereo Adjustments.
27	SAP VCO	00 - 15	Set value to 8.
28	SAP low pass filter	00 - 63	Set value to 30.
29	SAP band pass filter	00 - 15	Set value to 9.
30	Wideband Separation	00 - 63	Refer to Stereo Adjustments.
31	Spectral Separation	00 - 63	Refer to Stereo Adjustments.

(1) RF AGC has been preset at time of manufacture for optimum operation over a wide range of RF signal input conditions. Readjustment should not be required unless the tuner has been repaired, U1001, U3101, or U3201 has been replaced, or unusual signal conditions exist. Use weakest local signal to adjust RF AGC parameter setting.

TELEVISION SCHEMATIC continued



VOLTAGES TAKEN WITH SIGNAL

ADDITIONAL SCHEMATIC NOTES, SEE PAGE 3

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MISCELLANEOUS ADJUSTMENTS continued

ELECTRONIC TUNER ALIGNMENT PARAMETERS

Use tuner service modulator, RCA stock no. 215568, and a VCR for signal source. Monitor RF AGC at the positive end of C2306 or at pin 12 of U1001, and adjust for minimum voltage at each parameter. The entire Electronic Tuner Alignment procedure, once started, must be completed in its entirety. Electronic Tuner Alignment is performed with top and bottom covers in place with bottom cover soldered.

Parameter No.	Parameter Name	Value Range
32	Pass number for tuner alignment parameters	Must set to 78
100	Ch. 2 secondary	00-63
101	Ch. 2 primary	00-63
102	Ch. 2 single	00-63
103	Ch. 6 secondary	00-63
104	Ch. 6 primary	00-63
105	Ch. 6 single	00-63
106	Ch. 14 secondary	00-63
107	Ch. 14 primary	00-63
108	Ch. 14 single	00-63
109	Ch. 17 secondary	00-63
110	Ch. 17 primary	00-63
111	Ch. 17 single	00-63
112	Ch. 18 secondary	00-63
113	Ch. 18 primary	00-63
114	Ch. 18 single	00-63
115	Ch. 13 secondary	00-63
116	Ch. 13 primary	00-63
117	Ch. 13 single	00-63
118	Ch. 34 secondary	00-63
119	Ch. 34 primary	00-63
120	Ch. 34 single	00-63
121	Ch. 37 secondary	00-63
122	Ch. 37 primary	00-63
123	Ch. 37 single	00-63
124	Ch. 48 secondary	00-63
125	Ch. 48 primary	00-63
126	Ch. 48 single	00-63

Parameter No.	Parameter Name	Value Range
127	Ch. 50 secondary	00-63
128	Ch. 50 primary	00-63
129	Ch. 50 single	00-63
130	Ch. 51 secondary	00-63
131	Ch. 51 primary	00-63
132	Ch. 51 single	00-63
133	Ch. 57 secondary	00-63
134	Ch. 57 primary	00-63
135	Ch. 57 single	00-63
136	Ch. 63 secondary	00-63
137	Ch. 63 primary	00-63
138	Ch. 63 single	00-63
139	Ch. 76 secondary	00-63
140	Ch. 76 primary	00-63
141	Ch. 76 single	00-63
142	Ch. 83 secondary	00-63
143	Ch. 83 primary	00-63
144	Ch. 83 single	00-63
145	Ch. 93 secondary	00-63
146	Ch. 93 primary	00-63
147	Ch. 93 single	00-63
148	Ch. 110 secondary	00-63
149	Ch. 110 primary	00-63
150	Ch. 110 single	00-63
151	Ch. 117 secondary	00-63
152	Ch. 117 primary	00-63
153	Ch. 117 single	00-63
154	Ch. 125 secondary	00-63
155	Ch. 125 primary	00-63
156	Ch. 125 single	00-63

MECHANICAL TUNER COIL ALIGNMENT

The tuner coil alignment is preset at the time of manufacture and should require no further adjustment. The following recommended procedure should be performed only in event a complete tuner alignment is necessary, which is unlikely. Use plastic or wooden tool to knife coils. This procedure is performed with top tuner cover removed and bottom tuner cover in place and soldered. Tuner service modulator RCA stock No. 215568 is used in this procedure.

1. Manually tune the set and the tuner service modulator to channel 125 (band 3) and enter parameter 154.
2. Connect DVM to tuner side of R7525.
3. Check for voltage reading between 4.55V and 4.75V, if not expand or compress L7303 to set voltage within these limits.
4. Manually tune the set and the tuner service modulator to channel 50 (band 2) and enter parameter 127.
5. While DVM is still connected to R7525, check for voltage reading between 4.8V and 5V, if not expand or compress L7304 to set voltage within these limits.
6. Manually tune the set and the tuner service modulator to channel 17 (band 1) and enter parameter 109.
7. While DVM is still connected to R7525, check for voltage reading between 4.4V and 4.6V, if not expand or compress L7305 to set voltage within these limits.
8. Manually tune the set and the tuner service modulator to channel 125 (band 3) and enter parameter 154.
9. Connect DVM to positive side of C7503 (RF AGC to tuner)
10. Set parameter value range to 31.
11. Expand or compress L7105 for minimum RF AGC voltage.
12. Enter parameter 155 and set parameter value range to 31.
13. Expand or compress L7104 for minimum RF AGC voltage.
14. Enter parameter 156 and set parameter value range to 31.
15. Expand or compress L7102 for minimum RF AGC voltage.
16. Manually tune the set and the tuner service modulator to channel 50 (band 2) and enter parameter 127.
17. Set parameter value range to 31.
18. Expand or compress L7113 for minimum RF AGC voltage.
19. Enter parameter 128 and set parameter value range to 31.
20. Expand or compress L7111 for minimum RF AGC voltage.
21. Enter parameter 129 and set parameter value range to 31.
22. Expand or compress L7107 for minimum RF AGC voltage.
23. Manually tune the set and the tuner service modulator to channel 17 (band 1) and enter parameter 109.
24. Set parameter value range to 31.
25. Expand or compress L7114 for minimum RF AGC voltage.
26. Enter parameter 110 and set parameter value range to 31.
27. Expand or compress L7112 for minimum RF AGC voltage.
28. Enter parameter 111 and set parameter value range to 31.
29. Expand or compress L7106 for minimum RF AGC voltage.
30. Perform the entire Electronic Tuner Alignment.

STEREO ADJUSTMENTS

INPUT LEVEL

Turn stereo expander off. Enter parameter 25. Set stereo generator output to pilot, 300Hz, and L + R. Connect an oscilloscope to connector JS6. Adjust the parameter value for an output level of 350mVp-p. Do not measure noise. Connect a dual oscilloscope to the right audio output at connector JS6 and the left audio output at connector JS5. Confirm that output of both sides are within ± 50mVp-p of each other.

STEREO VCO

Enter parameter 26. Set stereo generator to pilot, 300 Hz and L+R. Connect a frequency counter to connector JS6. Adjust the parameter value for frequency of 62936 Hz ± 200Hz.

WIDEBAND/SPECTRAL SEPARATION

Set volume to midrange. Set stereo generator to pilot, 300Hz and L. Connect oscilloscope to JS6. Enter parameter 30. Adjust value to 20. Increase parameter value slowly for a minimum amplitude of waveform. Enter parameter 31. Change stereo generator to 3kHz. Set parameter value to 20. Increase parameter value slowly for a minimum amplitude of waveform.

NOTE: If stereo generator does not have 3kHz setting or if parameter 31 does not adjust the same as parameter 30, set parameter 31 to a value of 31 and confirm parameter 30 is adjusted for minimum amplitude at 3kHz or highest generator setting.

SERVICE TIP

INTERMITTENT SAP OPERATION

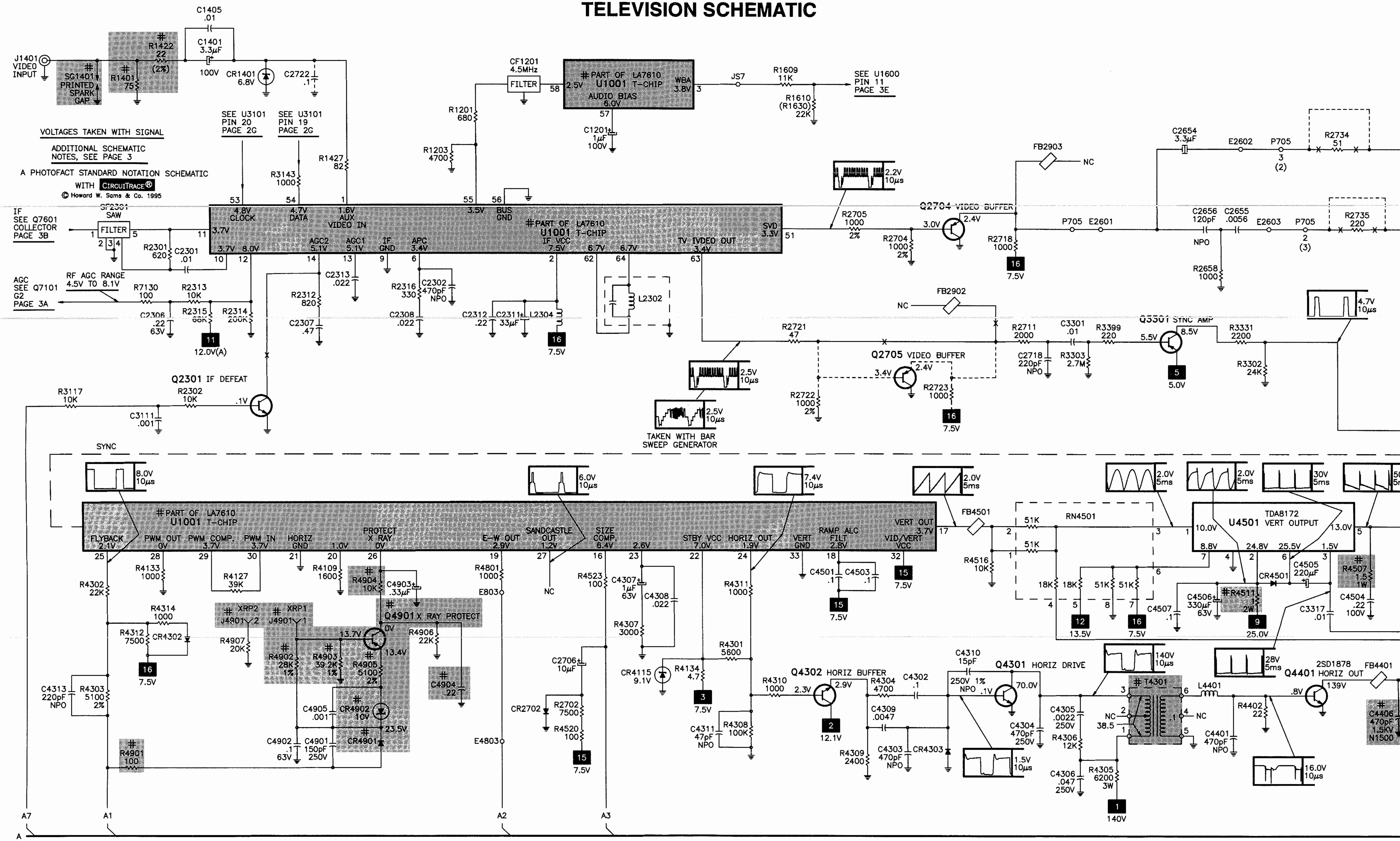
Symptom: Audio drops out in SAP mode. Chassis CTC187, serial numbers lower than 429000000.

Cause: SAP noise detector triggers when there are high level stereo L-R signals and switches from SAP mode to stereo mode.

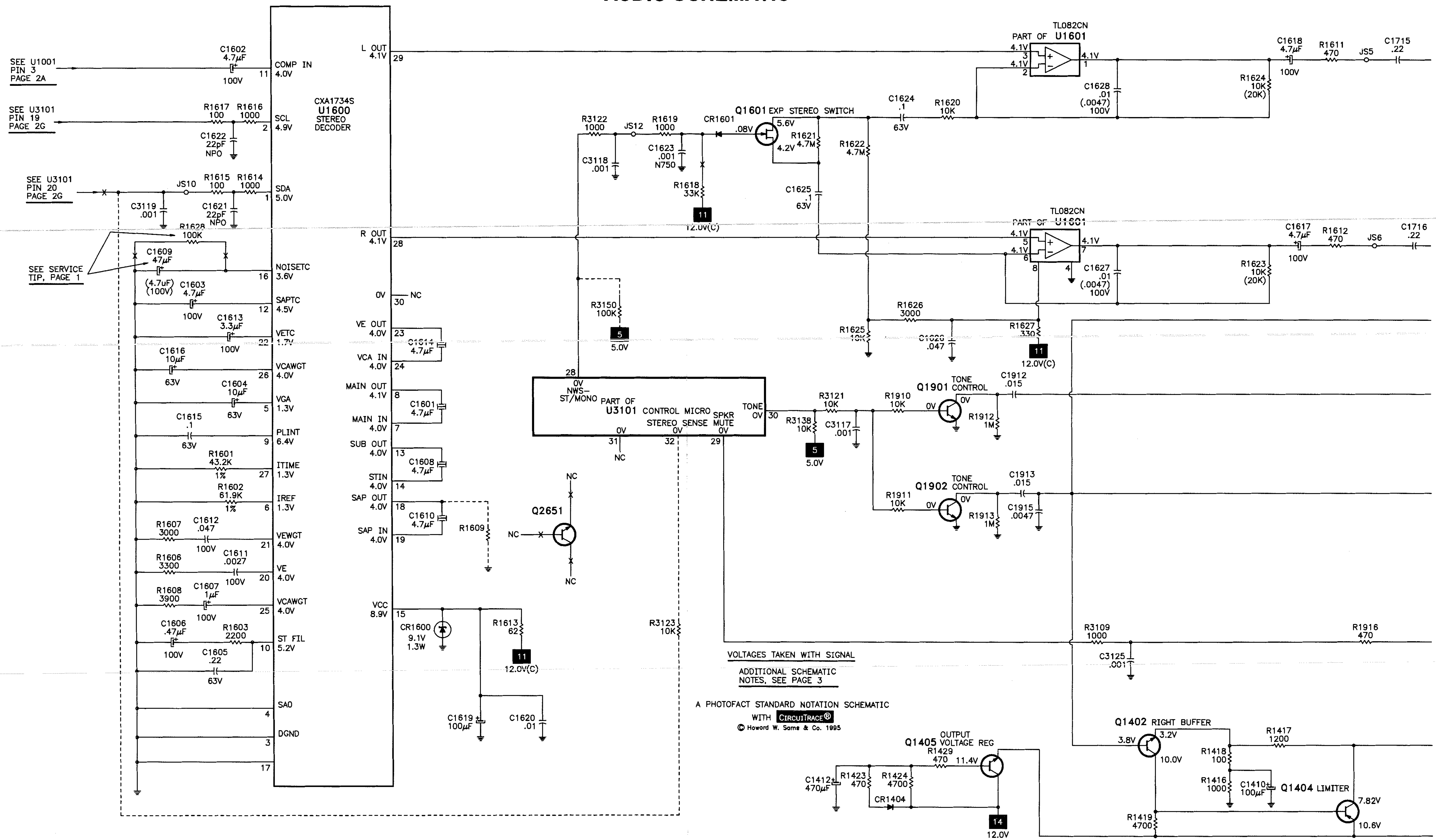
Solution: Replace C1609 (on DBX stereo board) with 47µF, 25V capacitor (part number 193043). Add resistor R1628, 100K ohm (part number 192084), across C1609 leads. See schematic page 3E.

A B

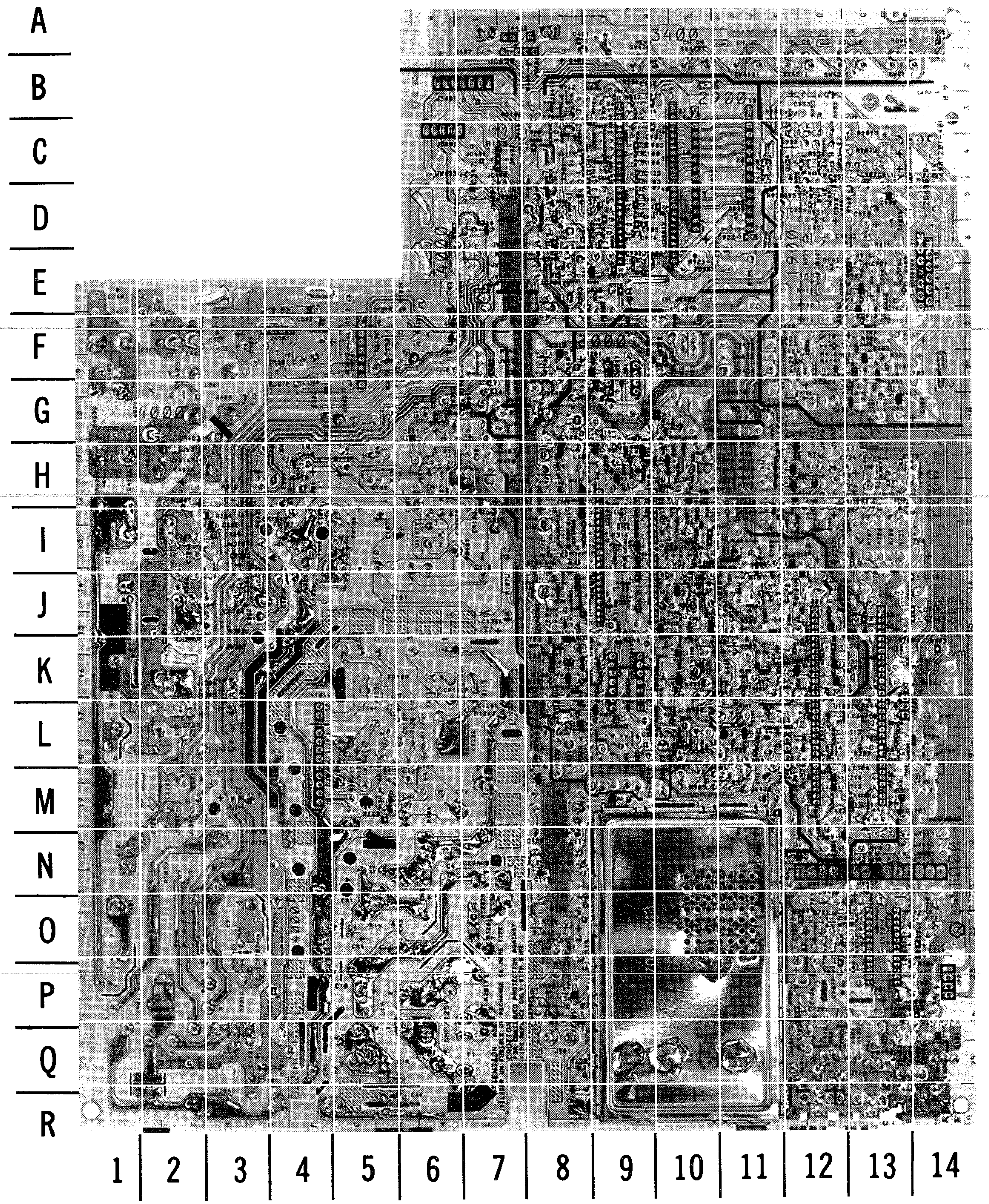
TELEVISION SCHEMATIC



AUDIO SCHEMATIC



E F



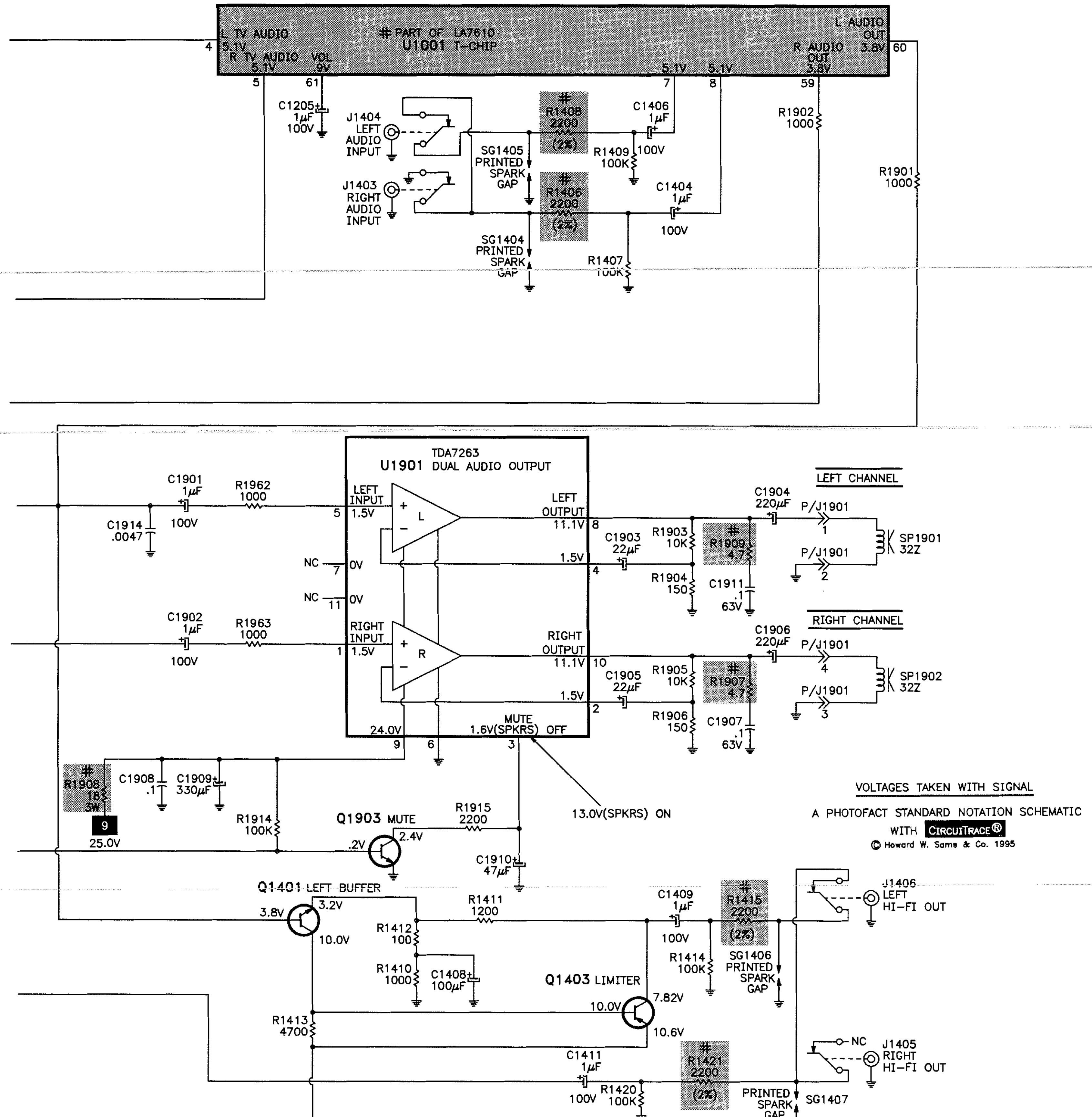
A HOWARD W. SAMS GRIDTRACE™ PHOTO

MAIN BOARD - BOTTOM VIEW

MAIN BOARD - BOTTOM VIEW, GRIDTRACE LOCATION GUIDE

C1403	Q-14	C4501	J-12	R2302	L-11	R3303	J-10	R7522	K-9
C1405	Q-12	C4503	I-12	R2312	L-12	R3304	G-10	R7523	L-10
C1715	M-12	C4507	E-4	R2313	L-11	R3305	I-9	R7524	K-10
C1716	M-12	C4903	K-12	R2314	L-12	R3306	I-9		
C1908	D-13	C4904	L-11	R2315	M-11	R3310	I-8		
C1912	E-13	C7501	K-9	R2316	M-12	R3314	J-9		
C1913	E-13	C7502	L-9	R2702	J-11	R3316	I-9		
C1914	E-13	C7503	K-10	R2703	I-12	R3317	H-11		
C1915	F-13	C7504	L-9	R2704	L-13	R3318	I-8		
C2301	L-12	C7505	L-10	R2705	L-13	R3319	H-11		
C2302	L-12	C7506	L-9	R2712	H-12	R3320	H-9		
C2307	L-12	C7507	L-8	R2713	H-11	R3321	H-11		
C2308	M-13	CR2904	E-9	R2714	H-12	R3322	H-10		
C2309	N-12	CR3102	K-8	R2715	H-11	R3323	G-10		
C2312	M-13	CR3110	J-10	R2716	H-12	R3324	I-10		
C2313	L-12	CR3111	K-10	R2717	H-11	R3325	I-9		
C2718	J-10	CR3302	I-9	R2721	M-13	R3326	H-10		
C2803	L-11	CR3303	H-8	R2726	J-13	R3327	H-8		
C3101	H-8	FB4110	M-9	R2728	I-12	R3328	H-8		
C3102	I-8	FB4111	P-8	R2729	I-12	R3330	J-13		
C3103	J-8	Q1401	J-4	R2731	J-12	R3331	J-10		
C3104	I-8	Q1402	F-13	R2734	K-13	R3345	H-10		
C3106	J-8	Q1403	G-3	R2735	L-13	R3347	I-10		
C3107	K-8	Q1404	F-13	R2801	I-12	R3399	J-10		
C3109	J-8	Q1901	E-13	R2802	I-12	R4101	J-11		
C3110	H-10	Q1902	E-13	R2803	L-11	R4108	G-7		
C3111	J-10	Q1903	E-13	R2804	L-13	R4109	K-12		
C3112	H-9	Q2301	L-11	R2904	B-5	R4119	J-11		
C3113	I-8	Q2701	H-12	R3101	I-8	R4127	K-11		
C3114	J-9	Q2702	H-12	R3103	J-8	R4129	M-5		
C3115	J-9	Q2703	H-12	R3104	J-8	R4129	Q-8		
C3117	H-10	Q2704	L-14	R3105	I-9	R4132	L-8		
C3118	H-9	Q3101	K-8	R3106	J-8	R4133	K-12		
C3122	K-8	Q3102	K-8	R3109	I-10	R4134	K-11		
C3125	H-10	Q3301	J-10	R3111	H-8	R4136	M-5		
C3126	K-8	Q3303	H-9	R3112	H-8	R4201	Q-8		
C3127	K-10	Q3304	H-10	R3114	I-8	R4301	K-12		
C3128	H-8	Q3305	H-10	R3115	H-8	R4302	J-11		
C3201	F-9	Q4106	M-8	R3117	J-10	R4304	I-3		
C3301	J-10	Q4302	H-2	R3118	J-8	R4307	L-11		
C3303	L-8	Q7501	L-9	R3119	J-8	R4308	J-12		
C3306	H-8	Q7502	L-8	R3120	J-8	R4309	H-2		
C3307	H-10	R1201	M-13	R3121	I-10	R4311	K-12		
C3310	1-9	R1203	L-13	R3122	H-10	R4313	L-11		
C3311	H-9	R1407	Q-12	R3123	J-8	R4314	F-10		
C3312	J-8	R1409	Q-12	R3124	J-8	R4516	D-7		
C3313	H-8	R1410	G-13	R3125	J-8	R4520	J-11		
C3314	G-9	R1411	G-13	R3129	K-8	R4801	K-12		
C3316	H-9	R1412	G-13	R3130	I-10	R7131	O-8		
C3318	H-9	R1413	G-13	R3131	K-8	R7133	P-8		
C4103	M-5	R1414	Q-13	R3132	K-8	R7501	K-9		
C4111	G-6	R1416	F-12	R3133	K-8	R7502	L-9		
C4114	H-4	R1417	F-13	R3134	I-8	R7503	L-9		
C4119	N-8	R1418	F-13	R3135	I-8	R7504	J-9		
C4120	J-12	R1419	F-12	R3138	K-8	R7505	I-9		
C4121	J-12	R1420	Q-13	R3140	H-8	R7506	I-9		
C4133	K-11	R1423	F-12	R3141	J-8	R7507	K-9		
C4134	I-13	R1424	F-12	R3145	K-8	R7508	L-8		
C4201	Q-8	R1427	M-12	R3151	K-10	R7509	K-9		
C4302	I-3	R1901	F-13	R3152	K-10	R7510	K-9		
C4303	K-10	R1902	F-13	R3155	C-7	R7511	K-9		
C4308	K-12	R1912	E-13	R3201	F-9	R7513	L-10		
C4309	I-3	R1913	F-13	R3202	G-9	R7514	L-10		
C4311	K-13	R1962	E-13	R3204	G-9	R7516	K-10		
C4313	F-8	R1963	E-13	R3301	J-8	R7517	K-10		
C4401	L-2	R2301	L-11	R3302	J-9	R7521	L-8		

AUDIO SCHEMATIC continued



G

SCHEMATIC NOTES

- # For SAFETY use only equivalent replacement part, see parts list.
- Circuitry not used in some versions.
- --- Circuitry used in some versions.
- Ground
- Chassis ground
- Common tie point
- △ Taken from common tie point
- 3 Schematic CircuiTrace®: Voltage source tie point.
- A Cabling: Heavy lines reduce use of multiple lines.

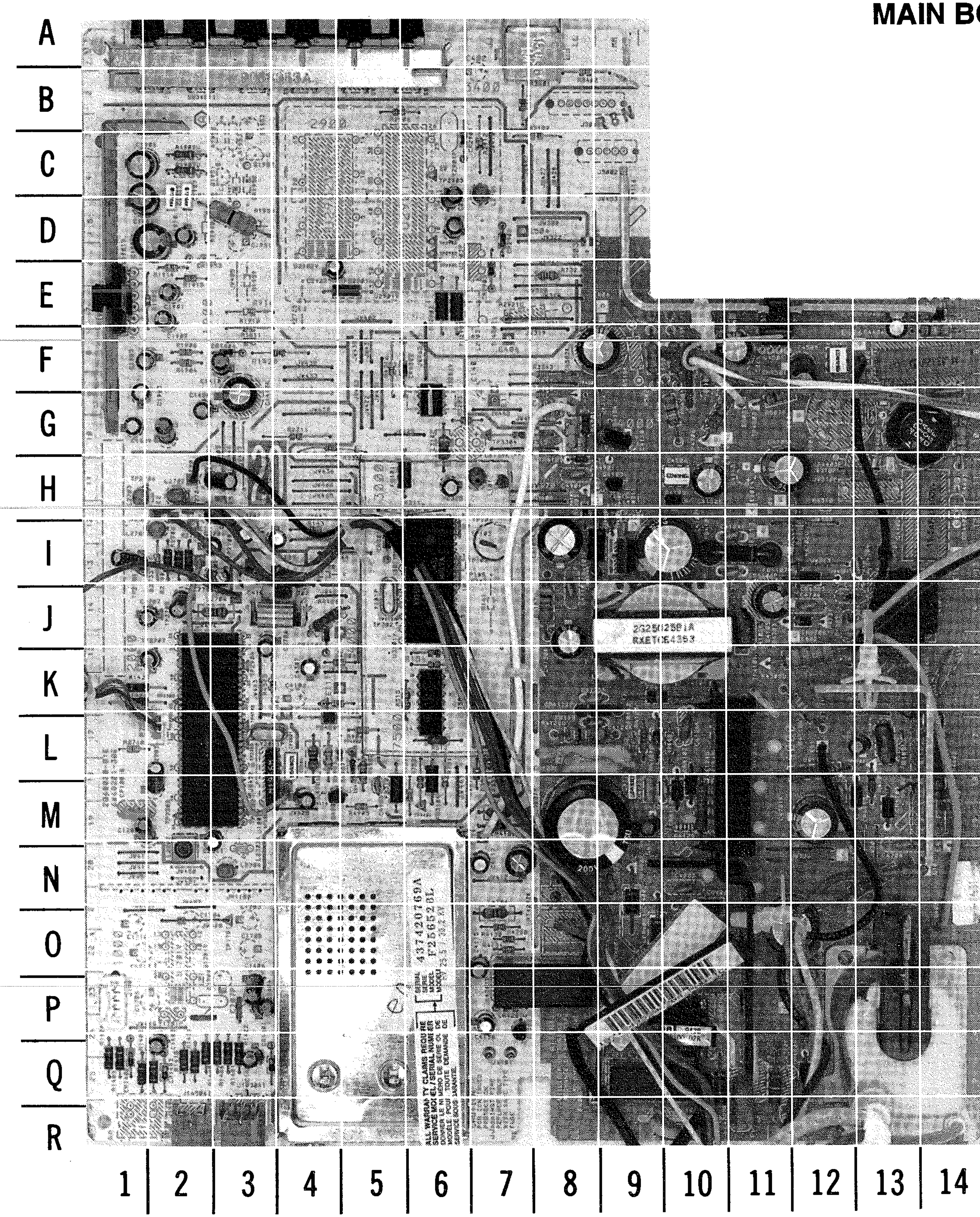
Waveforms and voltages are taken from ground, unless noted otherwise.
Waveforms taken with triggered scope and colorbar signal. Waveform voltage is peak to peak. Timebase is per division. Waveforms shown at 10 divisions.
Supply voltages maintained as seen at input.
Voltages measured with digital meter and a 1000µV RF signal, with colorbar pattern, applied to antenna terminal.
Controls adjusted for normal operation.
Capacitors are 50 volts or less, 5% or greater unless noted.
Electrolytic capacitors are 50 volts or less, 20% or greater unless noted.
Resistors are 1/2W or less, 5% or greater unless noted.
Value in ( ) used in some versions.
Measurements with switching as shown, unless noted.
Rated voltage shown on zener diodes.

TEST EQUIPMENT

Test equipment listed by participating manufacturer illustrates typical or equivalent equipment used by Sams engineers to obtain measurements. This equipment is compatible with most types used by field service technicians.

Equipment	Sencore No.	Equipment	Sencore No.
Oscilloscope	SC3100	Isolation Transformer	PR57
Generators		Capacitance Analyzer	LC101, LC102
RGB	CM2000	CRT Analyzer	CR70
Multiburst Signal	VG91	AC Leakage Tester	PR57
Color Bar	VG91	Inductance Analyzer	LC101, LC102
TV Stereo	VG91	Flyback Yoke Tester	TVA92
Digital VOM	SC3100	TV Stereo Power Monitor	SR68, PA81
Frequency Meter	SC3100	Field Strength Meter	SL750
Hi-Voltage Probe	HP200	Transistor Tester	TF46
Accessory Probes	TP212	Video Analyzer	VG91, TVA92

MAIN BOARD - TOP VIEW



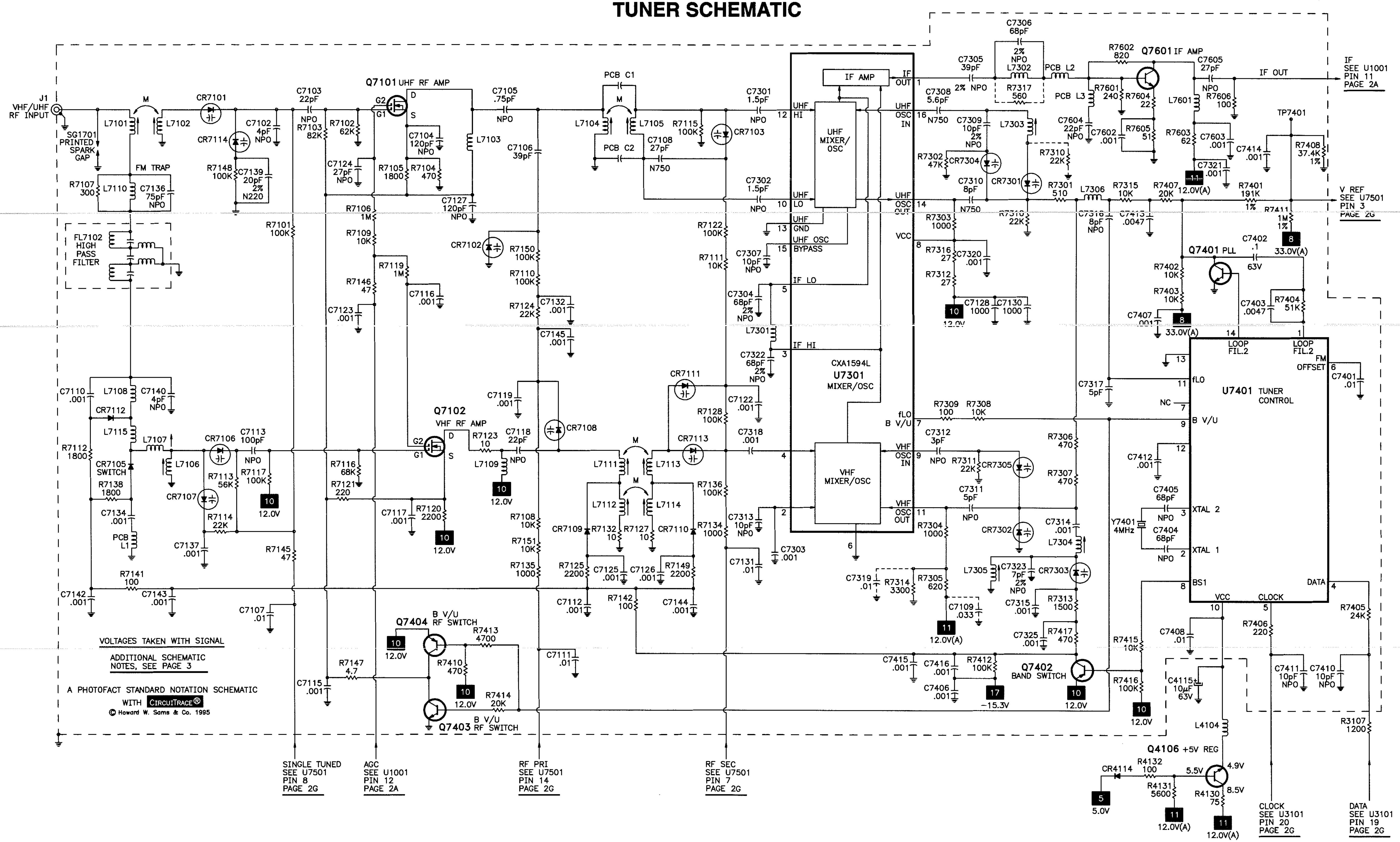
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MAIN BOARD - TOP VIEW, GRIDTRACE LOCATION GUIDE

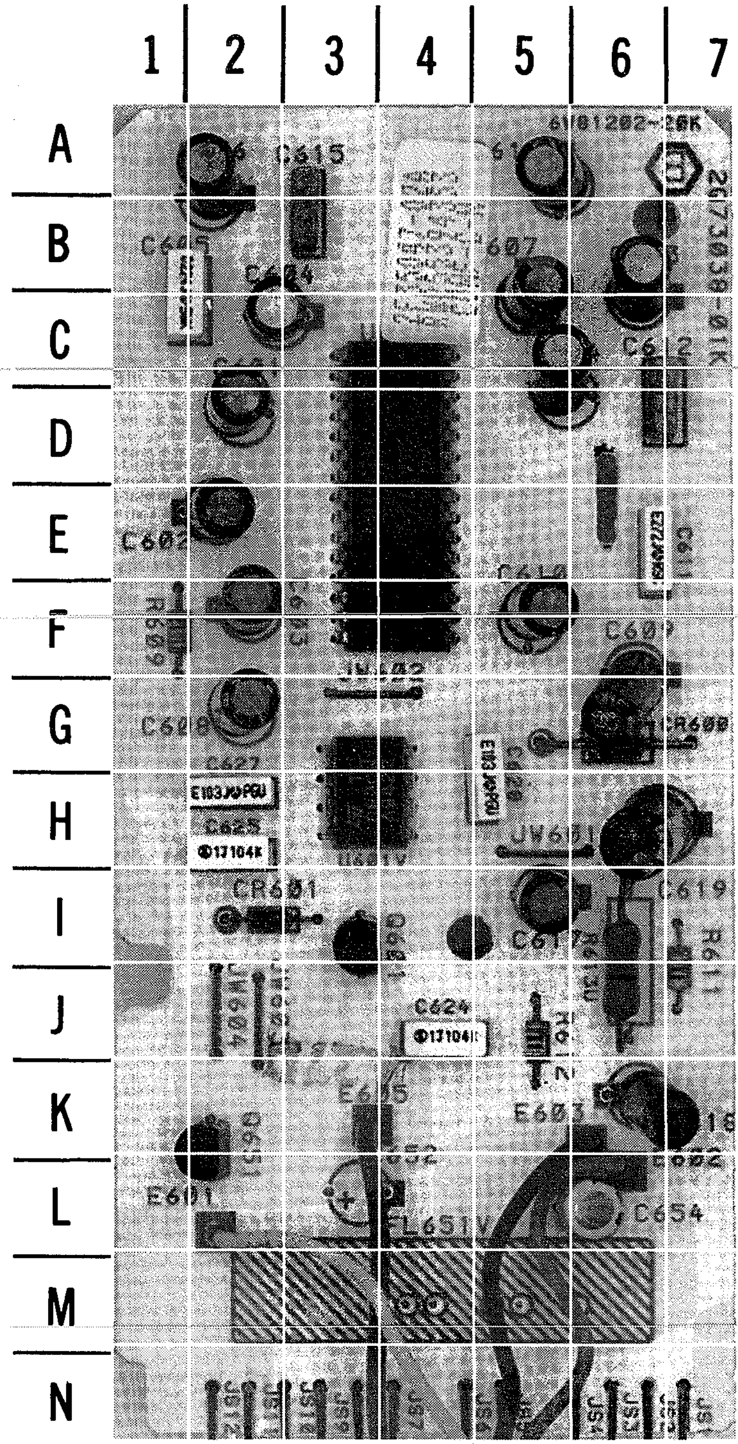
C1201	M-2	C4127	M-9	CR4701	Q-12	R1903	E-1	R4517	G-10
C1205	M-1	C4128	L-8	CR4702	P-11	R1904	F-2	R4519	F-10
C1401	Q-3	C4129	I-4	CR4704	J-12	R1905	E-2	R4523	K-3
C1402	Q-2	C4130	J-8	CR4705	M-13	R1906	F-2	R4701	P-12
C1404	P-3	C4131	M-12	CR4901	H-8	R1907	C-2	R4702	J-12
C1406	P-3	C4135	K-8	CR4902	L-5	R1908	D-3	R4703	N-13
C1408	G-2	C4136	M-10	F4001	Q-8	R1909	C-2	R4704	R-12
C1409	G-1	C4137	I-11	FB2901	E-5	R1910	F-3	R4705	M-13
C1410	F-3	C4138	P-7	FB2902	F-6	R1911	F-3	R4708	O-7
C1411	G-2	C4304	I-13	FB2903	F-6	R1914	E-2	R4901	G-8
C1412	G-3	C4305	J-12	FB3101	H-6	R1915	E-2	R4902	L-5
C1901	E-2	C4306	K-13	FB3103	M-5	R1916	E-3	R4903	L-4
C1902	E-2	C4307	K-4	FB3104	M-6	R2658	C-4	R4904	K-4
C1903	G-1	C4310	J-12	FB4102	K-9	R2706	I-2	R4905	M-5
C1904	C-1	C4402	H-14	FB4106	I-10	R2707	I-2	R4906	L-5
C1905	F-2	C4403	F-13	FB4107	I-11	R2708	I-2	R4907	L-4
C1906	C-1	C4404	F-13	FB4108	H-9	R2709	Q-11	R7512	L-6
C1907	C-2	C4405	G-13	FB4109	I-8	R2711	G-4	R7515	K-6
C1909	D-2	C4406	K-14	FB4112	K-9	R2718	L-1	R7518	M-6
C1910	D-2	C4502	F-9	FB4113	L-8	R2732	C-8	R7519	M-6
C1911	C-2	C4504	F-12	FB4401	M-14	R2733	I-2	R7520	L-7
C2306	L-4	C4505	F-12	FB4501	L-4	R2912	C-7	R7525	M-6
C2311	N-3	C4506	F-11	IR3401	A-8	R3102	C-8	RN4501	F-10
C2702	I-3	C4701	M-12	J1901	P-1	R3143	I-4	RT4201	O-8
C2703	J-2	C4702	Q-12	J4901	Q-7	R3154	K-6	SF2301	M-3
C2704	I-3	C4703	O-11	K4201	P-8	R3203	G-6	SG4001	R-10
C2705	H-3	C4704	P-12	L2302	N-2	R3311	H-6	SG4002	R-10
C2706	J-3	C4705	H-11	L2304	N-3	R3315	G-7	SW3410	A-4
C2707	J-2	C4706	J-12	L2701	I-2	R3329	G-4	SW3411	A-2
C2708	I-1	C4708	N-13	L2702	H-2	R3332	L-7	SW3420	A-5
C2709	K-2	C4709	L-13	L2703	H-1	R3343	F-8	SW3421	A-2
C2713	I-3	C4710	Q-12	L2704	J-3	R3348	K-6	SW3430	A-6
C2724	H-3	C4901	H-8	L2901	C-7	R3401	B-7	SW3431	A-3
C2801	I-4	C4902	G-8	L3101	H-7	R3402	B-8	T4101	J-9
C2920	C-6	C4905	M-5	L3102	G-6	R4001	O-10	T4301	J-13
C2927	E-4	CF1201	M-1	L4001	P-10	R4002	Q-10	T4401	Q-13
C2937	D-6	CR1401	Q-3	L4101	L-4	R4102	K-4	U1001	L-2
C3315	H-6	CR1402	Q-1	L4102	J-11	R4103	H-9	U1901	E-1
C3317	C-7	CR1403	Q-2	L4103	M-7	R4104	M-9	U3101	J-6
C3401	A-8	CR2702	I-4	L4104	O-7	R4105	M-10	U3201	G-6
C4001	Q-9	CR2901	C-6	L4401	L-13	R4106	J-4	U4101	M-11
C4003	N-10	CR2902	D-7	L4402	G-14	R4107	J-8	U4102	I-9
C4004	N-9	CR2903	E-7	P101	R-9	R4110	L-12	U4501	F-11
C4006	R-10	CR3301	I-5	P705	L-2	R4111	H-9	U7501	K-6
C4007	M-8	CR4001	O-10	Q1405	G-13	R4112	L-9	Y2801	L-3
C4008	R-11	CR4002	N-9	Q3302	P-7	R4113	L-12	Y3101	J-5
C4009	P-10	CR4003	O-9	Q4101	J-4	R4122	L-9		
C4010	P-10	CR4004	P-10	Q4103	H-9	R4124	M-10		
C4101	I-3	CR4101	J-4	Q4105	H-10	R4125	L-9		
C4104	H-10	CR4102	M-10	Q4301	L-11	R4126	L-8		
C4105	J-11	CR4103	H-8	Q4401	L-14	R4128	M-10		
C4106	I-10	CR4104	G-9	Q4901	M-4	R4130	O-7		
C4107	I-10	CR4106	I-11	R1401	Q-3	R4131	O-7		
C4108	I-8	CR4107	I-8	R1402	Q-1	R4135	L-10		
C4109	I-11	CR4108	M-7	R1403	Q-2	R4303	G-8		
C4110	J-8	CR4109	L-9	R1404	Q-1	R4305	K-12		
C4112	H-10	CR4111	M-10	R1405	Q-1	R4306	J-13		
C4115	P-7	CR4112	K-9	R1406	Q-3	R4310	H-12		
C4116	M-4	CR4113	M-13	R1408	Q-2	R4312	F-5		
C4117	N-7	CR4114	L-7	R1415	Q-2	R4401	F-14		
C4118	G-9	CR4115	K-12	R1421	Q-2	R4402	L-13		
C4122	L-8	CR4201	P-7	R1422	Q-3	R4403	G-14		
C4123	M-9	CR4302	F-6	R1425	K-1	R4501	F-10		
C4124	M-9	CR4303	I-12	R1426	K-1	R4502	F-9		
C4125	N-7	CR4401	E-14	R1428	F-4	R4507	G-11		
C4126	L-10	CR4501	F-11	R1429	K-1	R4511	G-10		

A B

TUNER SCHEMATIC



DBX STEREO BOARD - TOP VIEW

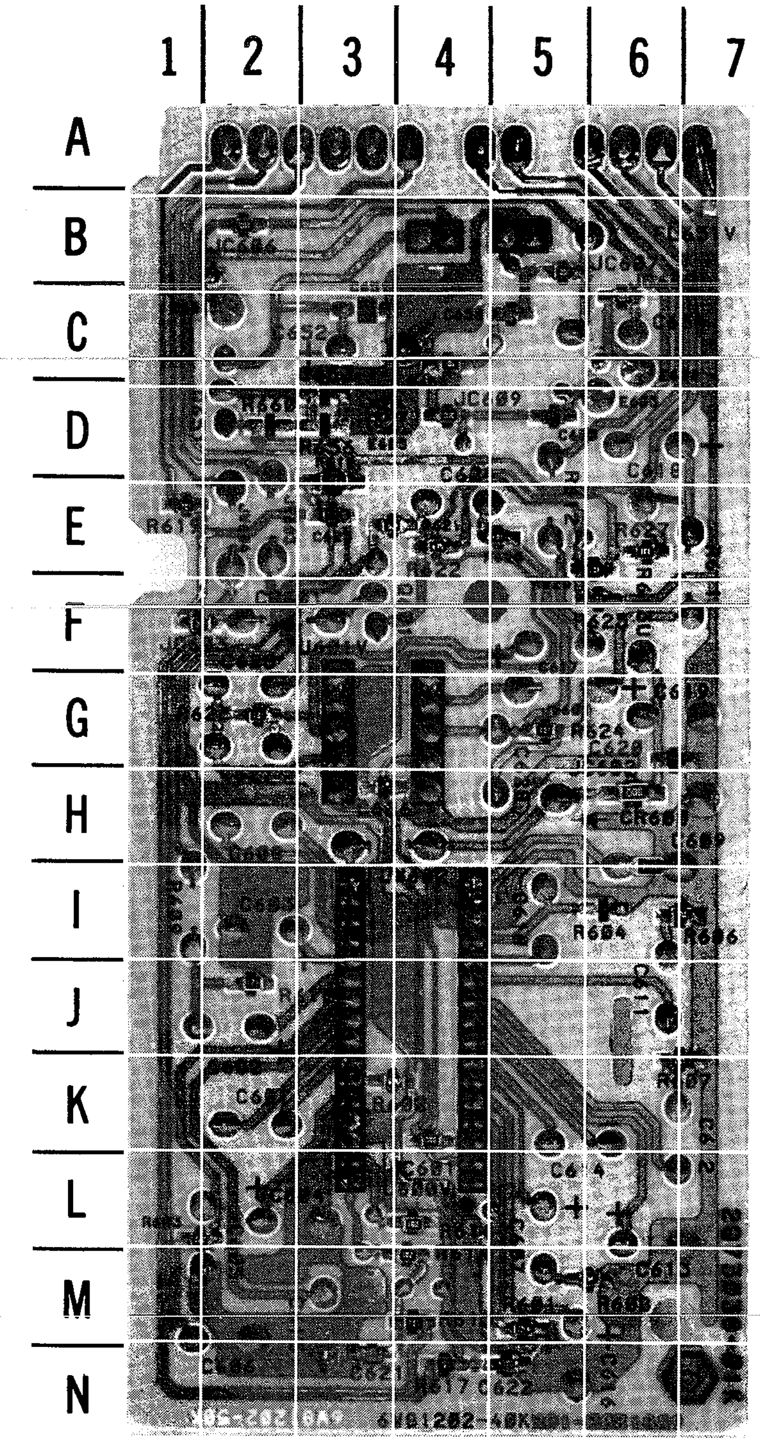


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DBX STEREO BOARD - TOP VIEW, GRIDTRACE LOCATION GUIDE

C1601	D-2	C1607	B-5	C1613	B-6	C1619	H-6	CR1600	G-6	R1612	J-5
C1602	E-2	C1608	G-2	C1614	C-5	C1624	J-4	CR1601	I-2	R1613	J-6
C1603	F-2	C1609	G-6	C1615	B-3	C1625	H-2	Q1601	I-3	U1600	D-4
C1604	C-2	C1610	F-5	C1616	A-5	C1627	H-2	Q2651	K-2	U1601	H-3
C1605	B-1	C1611	E-6	C1617	I-5	C1628	H-5	R1609	F-1		
C1606	A-2	C1612	C-6	C1618	K-6	C2654	L-6	R1611	J-7		

DBX STEREO BOARD - BOTTOM VIEW

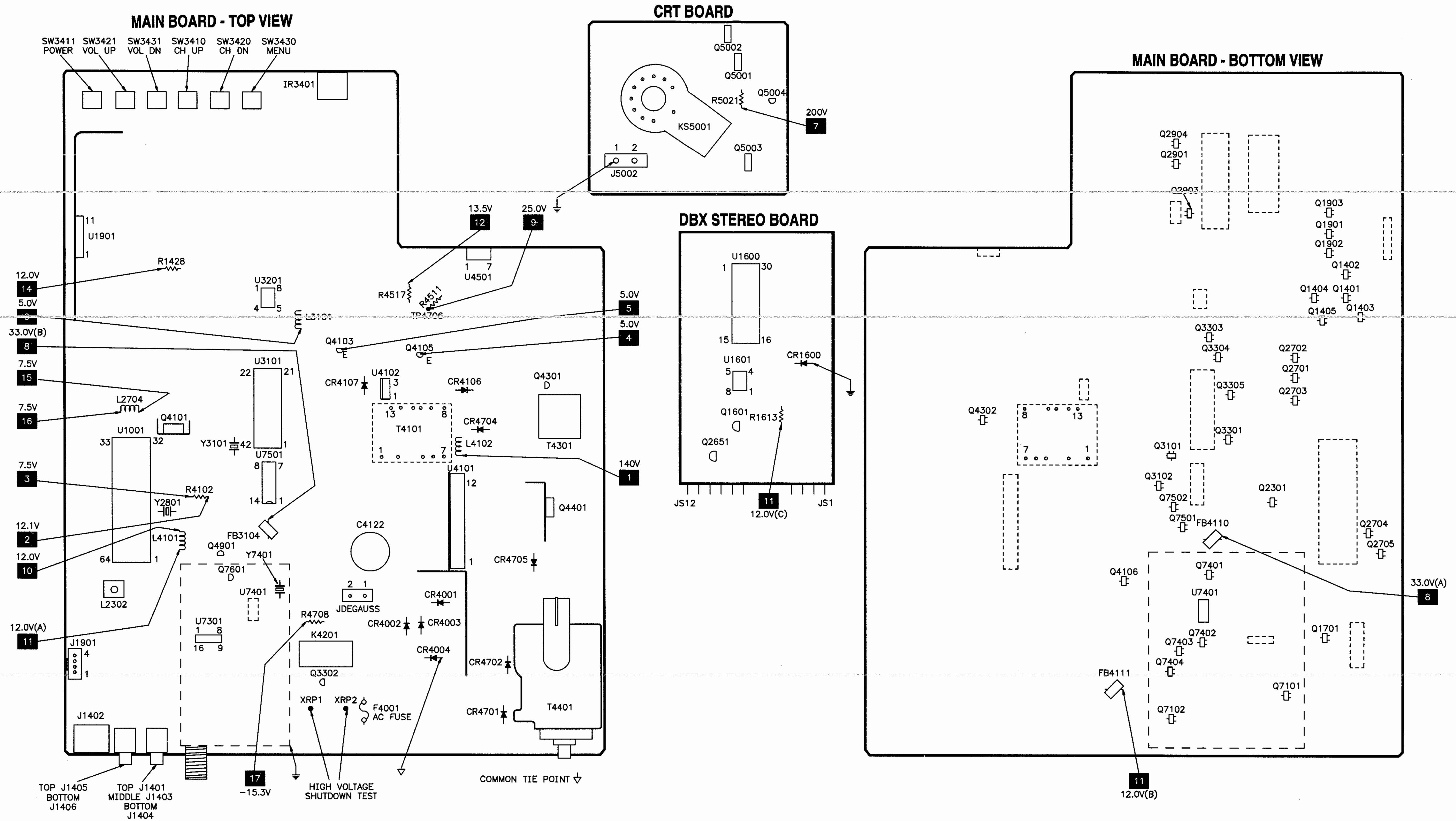


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DBX STEREO BOARD - BOTTOM VIEW, GRIDTRACE LOCATION GUIDE

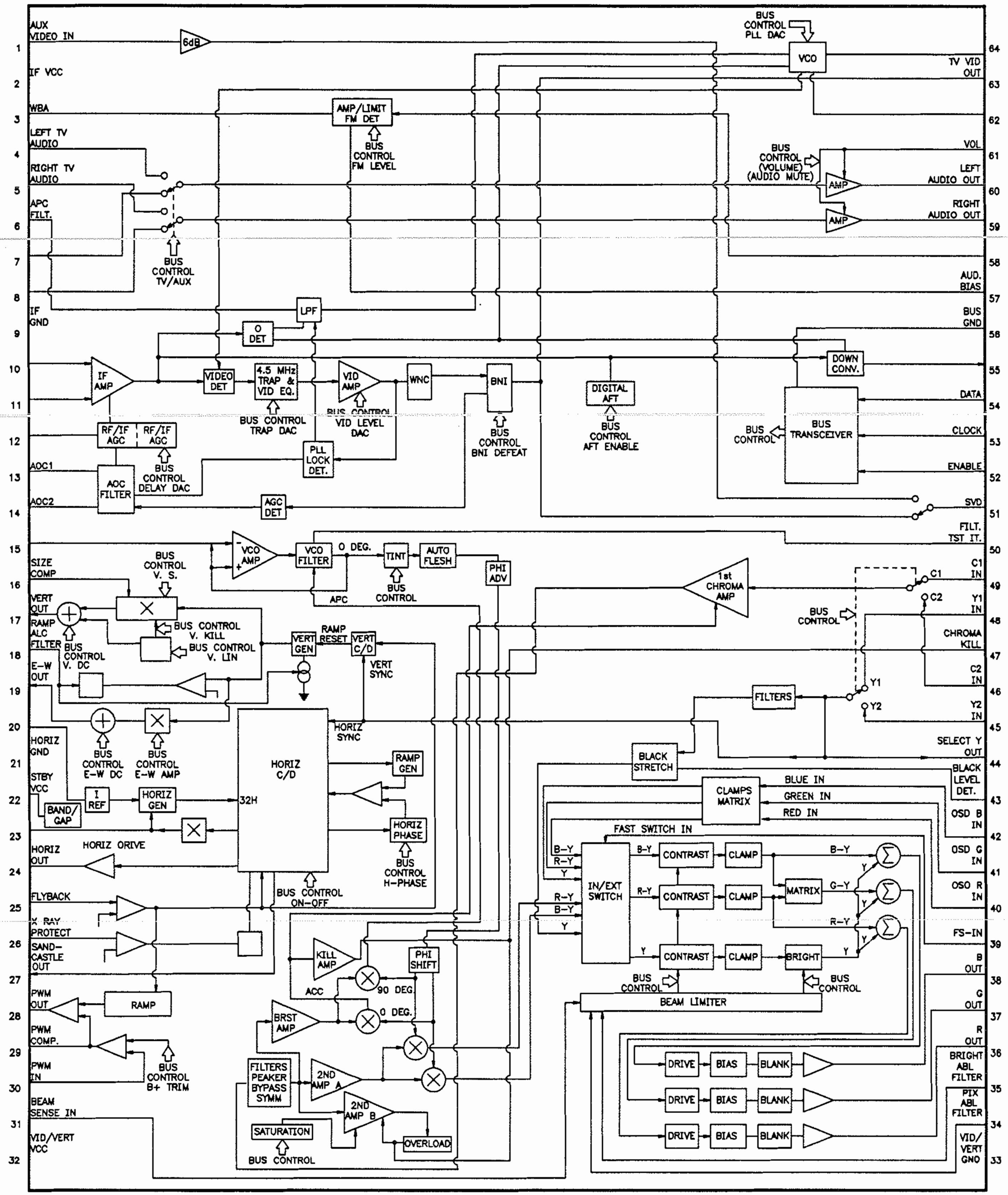
C1620	G-6	C2655	D-5	R1606	I-6	R1615	M-4	R1620	E-5	R1625	F-6
C1621	N-3	C2656	C-5	R1607	K-6	R1616	L-4	R1621	E-3	R1626	E-6
C1622	N-5	R1601	M-5	R1608	M-6	R1617	N-4	R1622	E-4	R1627	E-6
C1623	E-3	R1602	K-3	R1610	J-2	R1618	D-3	R1623	G-2	R1699	H-6
C1626	H-3	R1603	L-1	R1614	M-4	R1619	E-1	R1624	G-5		

PLACEMENT CHART

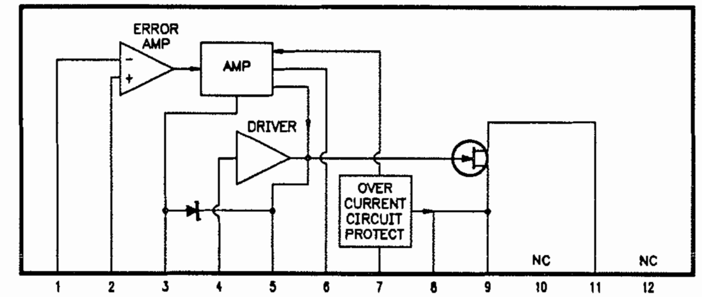


IC FUNCTIONS

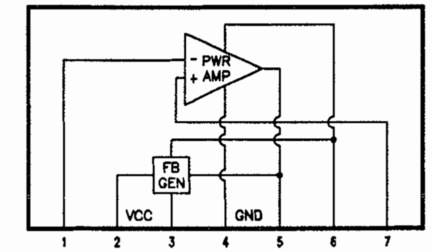
U1001
LA7610



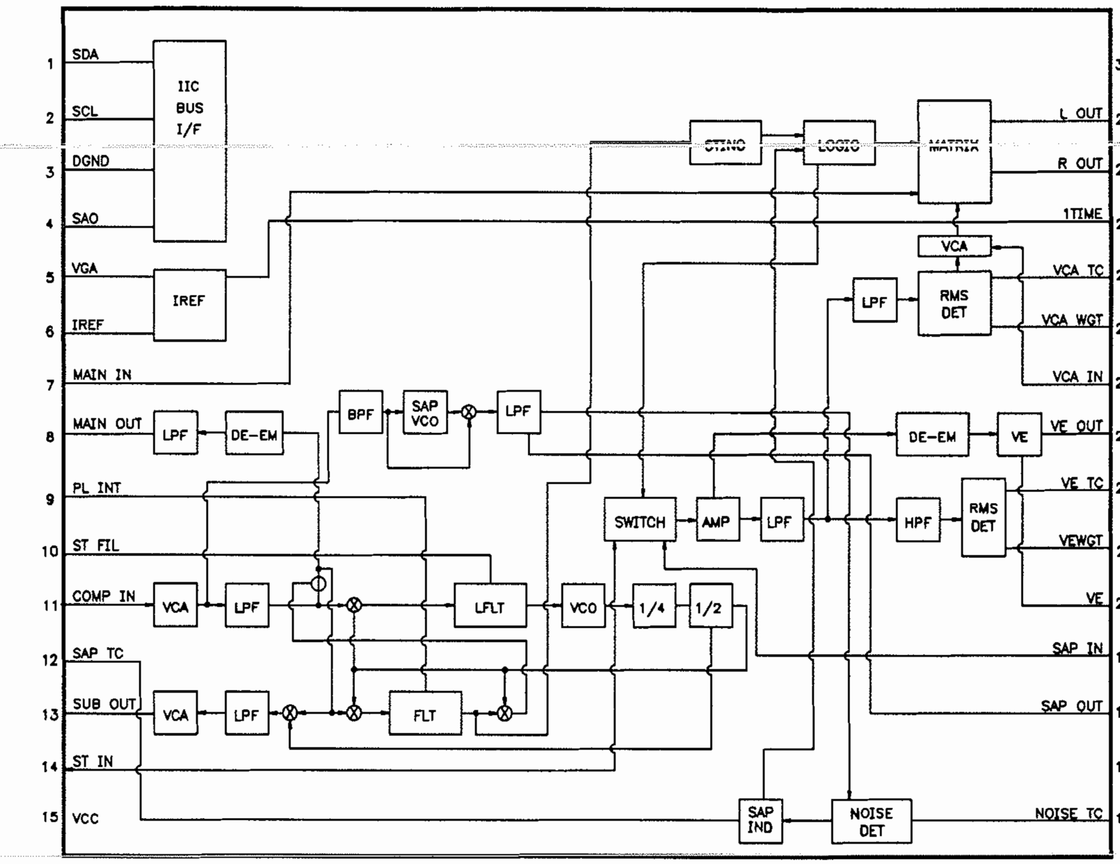
U4101
STK730-010



U4501
TDA8172



U1600
CXA1734S



Created with pride by the employees of Howard W. Sams & Company.

J. Barker, N. Beck, B. Bryant, B. Buchanan, T. Clensy, D. Cobb, G. Farrell, B. Fink, M. Herkless, J. Kocha, F. Malek, B. Medaris, R. Raus, B. Skinner, J. Young

PARTS LIST continued

SEMICONDUCTORS continued

(Select the replacement that gives the best results.)

Item No.	Type No.	Mfr. Part No.	NTE Part No.	ECG Part No.	TCE Part No.
CR7112	-	215493	-	-	-
CR7113 (2)	-	-	-	-	-
CR7114 (1)	-	-	-	-	-
CR7301 (1)	-	-	-	-	-
CR7302 (2)	-	-	-	-	-
CR7303	-	215493	-	-	-
CR7304 (1)	-	-	-	-	-
CR7305 (2)	-	-	-	-	-
Q1401, 02	-	215495	-	-	-
Q1403, 04	-	215496	-	-	-
Q1405	-	215495	-	-	-
Q1601	-	192849	-	-	-
Q1901, 02, 03	-	215495	-	-	-
Q2301	-	215495	-	-	-
Q2651	-	223704	-	-	-
Q2701 Thru Q2705	-	215496	-	-	-
Q3101	-	215495	-	-	-
Q3102	-	215496	-	-	-
Q3301	-	215496	-	-	-
Q3302	-	223704	-	-	-
Q3303	-	215496	-	-	-
Q3304	-	215495	-	-	-
Q3305	-	215496	-	-	-
Q4101	-	157627	NTE54	ECG54	SK9366
Q4103	-	223704	-	-	-
Q4105	-	146851	NTE287	ECG287	SK3433
Q4106	-	215495	-	-	-
Q4301	-	146851	NTE287	ECG287	SK3433
Q4302	-	215495	-	-	-
Q4401	2SD1878	191142	NTE2331	ECG2331	SK10088
# **Q4901**	-	147665	NTE159	ECG159	SK3466
Q5001, 02, 03	2SC3619	215497	NTE157	ECG157	SK3747
Q5004	-	143806	NTE159	ECG159	SK3466
Q7101, 02	-	200566	-	-	-
Q7401	-	215495	-	-	-
Q7402	-	215496	-	-	-
Q7403	-	215495	-	-	-
Q7404	-	215496	-	-	-
Q7501, 02	-	215495	-	-	-
Q7601	-	146848	NTE229*	ECG229*	SK3246A*
# **U1001**	LA7610	215524	-	-	-
U1600	CXA1734S	225700	-	-	-
U1601	TL082CN	223806	-	-	-
U1901	TDA7263	215526	-	-	-
U3101	-	223909	-	-	-
U3201	-	223940	-	-	-
U4101	STK730-010	215530	-	-	-

For SAFETY use only equivalent replacement part.
* Lead configuration may vary from original.
(1) Part of CR7101 Diode Kit.
(2) Part of CR7106 Diode Kit.

SEMICONDUCTORS continued

(Select the replacement that gives the best results.)

Item No.	Type No.	Mfr. Part No.	NTE Part No.	ECG Part No.	TCE Part No.
U4102	L7812CV	162394	NTE966	ECG966	SK3592
U4501	TDA8172	215531	NTE1788	ECG1788	SK9875
U7301	CXA1594L	215532	-	-	-
U7401	-	215533	-	-	-
U7501	-	215534	-	-	-

MISCELLANEOUS

Item No.	Description	Mfr. Part No.	Notes
CF1201	Filter	195702	4.5MHz
# **F4001**	Fuse	175425	5Amp, 125V, Fast Acting
IR3401	Receiver	198606	Remote
J1401, 03, 04	Jack	215544	Assembly
J1405, 06	Jack	215545	Assembly
# **K4201**	Relay	190490	Degaussing
# **KS5001**	Socket	189986	CRT
# **P101**	Line Cord	215576	AC, Polarized
SF2301	Filter	217318	SAW
SP1901, 02	Speaker	183163	2.25" X 3.5", 32 Ohms
SW3410	Switch	215500	Channel Up
SW3411	Switch	215500	Power
SW3420	Switch	215500	Channel Down
SW3421	Switch	215500	Volume Up
SW3430	Switch	215500	Menu
SW3431	Switch	215500	Volume Down
# **V101** (2)	CRT	A63ADT105	A63ADT10X05-3
# **V101** (3)	CRT	A66ADT271	A66ADT27X01
Y2801	Crystal	161235	3.58MHz
Y3101	Crystal	217322	8MHz
Y7401	Crystal	182839	4MHz
	PC Board (1)	225756	CRT
	PC Board (1)	223910	DBX Stereo
	Transmitter	221133	Remote (CRK74B1)

For SAFETY use only equivalent replacement part.
(1) Contact PTS Electronics Corporation for replacement; order by manufacturer's part number.
(2) Used in models F25652BLFE1/FX1.
(3) Used in models F26634SFFE1/JX1.

PARTS LIST continued

CAPACITORS & ELECTROLYTICS continued

Item No.	Rating	Mfr. Part No.
C7104	120pF 5% 50V NPO SMT	194902
C7105	.75pF ±.25pF 50V NPO SMT	214758
C7108	27pF 5% 50V N750 SMT	214760
C7113	100pF 5% 50V NPO SMT	193340
C7118	22pF 5% 50V NPO SMT	194903
C7124	27pF 5% 50V NPO SMT	197604
C7127	120pF 5% 50V NPO SMT	194902
C7136	75pF 5% 50V NPO SMT	192061
C7139	20pF 2% 50V N220 SMT	214761
C7140	4pF ±.5pF 50V NPO SMT	194901
C7301, 02	1.5pF ±.1pF 50V NPO SMT	223146
C7304	68pF 2% 50V NPO SMT	214762
C7305	39pF 2% 50V NPO SMT	215556
C7306	68pF 2% 50V NPO SMT	214762
C7307	10pF 5% 50V NPO SMT	214740
C7308	5.6pF ±.25pF 50V N750 SMT	214764
C7309	10pF 2% 50V NPO SMT	214765
C7310	8pF ±.5pF 50V N750 SMT	214766
C7311	5pF ±.5pF 50V NPO SMT	193917
C7312	3pF ±.5pF 50V NPO SMT	214767
C7313	10pF 5% 50V NPO SMT	214740
C7316	8pF ±.5pF 50V NPO SMT	194909
C7322	68pF 2% 50V NPO SMT	214762
C7323	7pF 2% 50V NPO SMT	214768
C7404, 05	68pF 5% 50V NPO SMT	193339
C7410, 11	10pF 5% 50V NPO SMT	214740
C7604	22pF 5% 50V NPO SMT	194903
C7605	27pF 5% 50V NPO SMT	197604

COILS & TRANSFORMERS

Item No.	Function/Rating	Mfr. Part No.	On-Unit No.
FB2901 Thru			
FB2903	Ferrite Bead	153328	-
FB3101, 03, 04	Ferrite Bead	153328	-
FB4102	Ferrite Bead	161237	-
FB4106, 07	Ferrite Bead	154322	-
FB4108, 09	Ferrite Bead	154042	-
FB4110, 11	Ferrite Bead	215546	-
FB4112, 13	Ferrite Bead	154042	-
FB4401	Ferrite Bead	161237	-
FB4402	Ferrite Bead	206390	-
FB4501	Ferrite Bead	215547	-
FL7102	Filter, High Pass	181470	-
L2302	VCO	215502	-
L2304	2.2µH	197616	-
L2701 Thru			
L2703	2.2µH	197616	-
L2704	10µH	175409	-
L2901	82µH	215503	-
L3101	10µH	161243	-
L3102	100µH	160186	-
# **L4000** (1)	Yoke 110° Horiz 1.22mH	-	2G27009-05A
	Vert 17.9mH	-	-
# **L4001**	Line Choke	190507	IC59100-028
L4101	10µH	175409	-
L4102	22µH	215504	-
L4103, 04	10µH	175409	-
L4201	Degaussing	214679	-
L4401	4µH	215505	-
# **L4402**	Horizontal Linearity	192844	-
L5002 Thru			
L5004	56µH	196107	-
L7101	-	215507	-
L7102	-	215508	-
L7103	-	223929	-
L7104, 05	-	223917	-
L7106	-	215509	-
L7107	-	215510	-
L7108	-	215511	-
L7109	3.9µH	200559	-
L7110	-	223288	-
L7111	-	215512	-
L7112	-	215513	-
L7113	-	215514	-
L7114	-	215513	-
L7115	-	215515	-
L7301	-	223928	-
L7302	-	223930	-
L7303	-	215516	-

For SAFETY use only equivalent replacement part.
(1) Bonded part of CRT, Yoke inductance for CRT A63ADT10X05-3 only.

COILS & TRANSFORMERScontinued

Item No.	Function/Rating	Mfr. Part No.	On-Unit No.
L7304	-	223920	-
L7305	-	215517	-
L7306	-	215554	-
L7601	.0068µH	195708	-
# **T4101**	Regulator	221948	2G25025-B1A
# **T4301**	Horizontal Driver	215541	30949060
# **T4401** (2)	Horizontal Output	215539	2G25026-B2G

For SAFETY use only equivalent replacement part.
(2) Focus and screen controls are part of T4401.

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PARTS LIST

Important Parts Information

- The parts listed here are those not usually available from a well-stocked supply cabinet or bin.
- Where items may be replaced with equivalent parts, several alternates are shown from participating vendors.
- On the parts lists, safety items are marked with a # to remind you that only exact replacements are recommended for these items.
- When ordering parts, state the model number, part number, and description.

Obtaining Parts

Many of these parts are available from your local Sams authorized distributor or the manufacturer of the equipment. Call Sams for the name of your nearest distributor:

800-428-7267

Or consult the Sams *Annual Index* for the address of the original equipment manufacturer.

Participating Vendors

Information on test equipment and replacement parts is listed in these pages for the following participating vendors. Consult the Sams *Annual Index* for their current address.

- Custom Components Corporation (Chek-A-Color)
- NTE Electronics, Inc. (NTE)
- Philips ECG Company (ECG)
- PTS Electronics Corporation (PTS)
- Sencore, Inc.
- Thomson Consumer Electronics, Inc. (SK, TCE)

CABINET PARTS

Item No.	Mfr. Part No.
MODELS F25652BLFE1/JX1	
# Cabinet Back	BK1528
# Mask, Cabinet Front	MK1563
MODELS F26634SFFE1/JX1	
# Cabinet Back	BK1505
# Mask, Cabinet Front	MK1518
REMOTE TRANSMITTER	
Battery Door	224263

For SAFETY use only equivalent replacement part.

SEMICONDUCTORS

(Select the replacement that gives the best results.)

Item No.	Type No.	Mfr. Part No.	NTE Part No.	ECG Part No.	TCE Part No.
CR1401, 02, 03	-	215487	-	-	-
CR1404	-	164717	NTE519	ECG519	SK3100
CR1600	-	225702	-	-	-
CR1601	-	164717	NTE519	ECG519	SK3100
CR2702	-	164717	NTE519	ECG519	SK3100
CR2901	-	164717	NTE519	ECG519	SK3100
CR2902	-	164874	NTE177	ECG177	SK9091
CR2903	-	164717	NTE519	ECG519	SK3100
CR2904	-	201133	-	-	-
CR3102, 10	-	201133	-	-	-
CR3111	-	218987	-	-	-
CR3301	-	164717	NTE519	ECG519	SK3100
CR3302	-	201133	-	-	-
CR3303	-	223659	-	-	-
CR4001 Thru CR4004	-	147015	NTE125	ECG125	SK5010A
CR4101	-	164874	NTE177	ECG177	SK9091
CR4102	-	176296	NTE125	ECG125	SK5010A
CR4103	-	164717	NTE519	ECG519	SK3100
CR4104	-	215488	-	-	-
CR4106	-	164589	NTE558	ECG558	SK3998
CR4107	-	164590	NTE580	ECG580	SK5036
CR4108	-	217306	-	-	-
CR4109	-	215490	-	-	-
CR4111	-	176296	NTE125	ECG125	SK5010A
CR4112	-	140971	NTE552	ECG552	SK9000
CR4113	-	176296	NTE125	ECG125	SK5010A
CR4114	-	164874	NTE177	ECG177	SK9091
CR4115	-	215491	-	-	-
CR4201	-	164717	NTE519	ECG519	SK3100
CR4302	-	164717	NTE519	ECG519	SK3100
CR4303	-	176296	NTE125	ECG125	SK5010A
# **CR4401**	-	140971	NTE552	ECG552	SK9000
CR4402	-	198596	-	-	-
CR4403	-	164589	NTE558	ECG558	SK3998
CR4501	-	147015	NTE125	ECG125	SK5010A
CR4701	-	207878	-	-	-
CR4702	-	176296	NTE125	ECG125	SK5010A
CR4704	-	207878	-	-	-
CR4705	-	176296	NTE125	ECG125	SK5010A
# **CR4901**	-	157301	NTE177	ECG177	SK9091
# **CR4902**	-	159429	NTE5019T1	ECG5019T1	SK9970
CR7101	-	215492	-	-	-
CR7102, 03 (1)	-	-	-	-	-
CR7105	-	215493	-	-	-
CR7106	-	215494	-	-	-
CR7107, 08 (2)	-	-	-	-	-
CR7109, 10	-	215493	-	-	-
CR7111 (2)	-	-	-	-	-

For SAFETY use only equivalent replacement part.
(1) Part of CR7101 Diode Kit.
(2) Part of CR7106 Diode Kit.

PARTS LIST continued

CONTROLS & RESISTORS

Item No.	Function/Rating	Mfr. Part No.	NTE Part No.
# **R1401, 02**	75 5% 1/4W	175756	QW075
# **R1403**	100 5% 1/4W	149602	QW110
# **R1404**	75 5% 1/4W	175756	QW075
# **R1405**	100 5% 1/4W	149602	QW110
# **R1406, 08**	2200 2% 1/4W Nonflammable	829222	QW222
	2200 5% 1/4W Nonflammable	-	QW222
# **R1415, 21**	2200 2% 1/4W Nonflammable	829222	QW222
	2200 5% 1/4W Nonflammable	-	QW222
# **R1422**	22 2% 1/4W Nonflammable	829022	QW022
R1601	43.2K 1% 1/10W SMT	225704	-
R1602	61.9K 1% 1/10W SMT	225705	-
# **R1907**	4.7 5% 1/4W	200197	QW4D7
# **R1908**	18 5% 3W	181234	3W018
# **R1909**	4.7 5% 1/4W	200197	QW4D7
R2704, 05	1000 2% 1/10W SMT	197638	-
# **R2709**	27K 5% 1/2W	206037	HW327
R2722	1000 2% 1/10W SMT	197638	-
R2728	470K 2% 1/10W SMT	205381	-
R2729	240K 2% 1/8W SMT	215687	-
R2732	1000 1% 1/4W	179753	-
R2801	15K 1% 1/10W SMT	215198	-
R2802	15.8K 1% 1/10W SMT	215199	-
R3343	5100 2% 1/4W	175417	QW251
# **R4001**	2.7 10% 15W Wirewound	190487	-
# **R4002**	2.7M 10% 1/2W	217662	HW527
# **R4113**	75 5% 2W Wirewound	205066	-
# **R4135**	27 2% 1/2W	830027	HW027
R4303	5100 2% 1/4W	175417	QW251
R4305	6200 5% 3W	179252	3W262
# **R4401**	15K 5% 1W	190557	1W315
# **R4403**	820 5% 1W	175349	1W182
R4502	1.8 5% 1W Nonflammable	831128	1W1D8
# **R4507**	1.5 5% 1W	178619	1W1D5
# **R4511**	1 10% 2W Wirewound	215577	-
# **R4701**	10 2% 1/2W Nonflammable	830010	HW010
# **R4702**	2.2 5% 2W Wirewound	215211	-
	3.3 5% 2W Wirewound	217315	-
# **R4703**	3.0 5% 3W Wirewound	215212	-
	3.3 5% 3W Wirewound	195730	-
# **R4704**	82K 5% 1/2W	830382	HW382
# **R4705**	100 5% 1/4W	829110	QW110
# **R4901**	100 5% 1/4W	829110	QW110
# **R4902**	28K 1% 1/4W	195731	-
# **R4903**	39.2K 1% 1/4W	190469	-
# **R4904**	10K 5% 1/4W	175317	QW310
# **R4905**	5100 2% 1/4W	175417	QW251
R5001, 02, 03	10K 5% 2W Nonflammable	176656	2W310
R7401	191K 1% 1/10W SMT	215214	-
R7408	37.4K 1% 1/10W SMT	215215	-
R7411	1M 1% 1/10W SMT	215216	-

For SAFETY use only equivalent replacement part.

CONTROLS & RESISTORS continued

Item No.	Function/Rating	Mfr. Part No.	NTE Part No.
R7501 Thru			
R7503	10K 1% 1/10W SMT	215217	-
R7504 Thru			
R7506	26.1K 1% 1/8W SMT	215218	-
R7507	14.3K 1% 1/10W SMT	215219	-
R7508	453 1% 1/8W SMT	215220	-
R7509	15.8K 1% 1/10W SMT	215199	-
R7510	100K 1% 1/10W SMT	215221	-
R7512	15.8K 1% 1/4W	181121	-
R7513	100K 1% 1/10W SMT	215221	-
R7515	15.8K 1% 1/4W	181121	-
R7516	100K 1% 1/10W SMT	215221	-
RN4501	Retwork	215499	-
# **RT4201**	4.8 Cold PTC	207768	-

For SAFETY use only equivalent replacement part.

CAPACITORS & ELECTROLYTICS

Item No.	Rating	Mfr. Part No.
C1601, 08	4.7μF 20% 35V NP	224269
C1610, 14	4.7μF 20% 35V NP	224269
C1621, 22	22pF 5% 50V NPO SMT	194903
C1623	.001 5% 50V N750 SMT	224274
C2302	470pF 5% 50V NPO SMT	214732
C2654	3.3μF 20% 50V NP	224270
C2656	120pF 5% 50V NPO SMT	194902
C2718	220pF 5% 50V NPO SMT	205551
C2803	16pF 2% 50V NPO SMT	214736
C3101, 02	100pF 5% 50V NPO SMT	193340
C3107	68pF 5% 50V NPO SMT	193339
C3110	100pF 5% 50V NPO SMT	193340
C3114, 15	27pF 5% 50V NPO SMT	197604
C3122	220pF 5% 50V NPO SMT	178188
C3128	56pF 10% 50V NPO SMT	222396
C3306	22pF 5% 50V NPO SMT	194903
C3307	47pF 5% 50V NPO SMT	210689
C3311	82pF 5% 50V NPO SMT	192049
C3313, 14	22pF 5% 50V NPO SMT	194903
C3316	200pF 5% 50V NPO SMT	218986
# **C4001**	.22 20% 250VV	214067
# **C4003, 04**	680pF 20% 1KV	190538
# **C4006**	470pF 20% 120V	250102
# **C4007**	680μF 20% 200V	190560
# **C4008**	.005 20% 120V	195697
# **C4009, 10**	680pF 20% 1KV	190538
# **C4101**	150μF 20% 16V	161027
# **C4105**	22μF +30% -10% 200V	225667
# **C4107**	100μF +30% -10% 250V	218374
# **C4122**	.033 5% 400V	214747
C4126	.001 10% 1KV	160461
C4303	470pF 5% 50V NPO SMT	214732
C4310	15pF 1% 250V NPO	223899
C4311	47pF 5% 50V NPO SMT	210689
C4313	220pF 5% 50V NPO SMT	178188
C4401	470pF 5% 50V NPO SMT	195918
# **C4402**	.0115 2% 1.6KV	223177
# **C4403**	.43 5% 250V	218369
# **C4404**	2.2μF 20% 200V	196050
# **C4405**	.0047 10% 250V	190534
# **C4406**	470pF 5% 1.5KV N1500	143242
C4702, 04	680pF 20% 1KV	190538
C4706, 08	680pF 20% 1KV	190538
C4710	.01 20% 1KV	137583
# **C4904**	.22 +80% -20% 25V	214739
C5001	.001 10% 3KV	120696
C5005 Thru		
C5007	120pF 5% 50V NPO SMT	174414
C7102	4pF +0pF -.25pF 50V NPO SMT	214757
C7103	22pF 5% 50V NPO SMT	194903

For SAFETY use only equivalent replacement part.